



Touchpoint Plus

Revision History

Revision	Comment	Date
Issue 01	First Issue and initial translations	30/05/2015
Issue 02	Added new chapters, new data and final translations	09/06/2015

Disclaimer

In no event shall Honeywell be liable for any damages or injury of any nature or kind, no matter how caused, that arise from the use of the equipment referred to in this manual.

Strict compliance with the safety procedures set out and referred to in this manual, and extreme care in the use of the equipment, are essential to avoid or minimize the chance of personal injury or damage to the equipment.

The information, figures, illustrations, tables, specifications, and schematics contained in this manual are believed to be correct and accurate as at the date of publication or revision. However, no representation or warranty with respect to such correctness or accuracy is given or implied and Honeywell will not, under any circumstances, be liable to any person or corporation for any loss or damages incurred in connection with the use of this manual.

The information, figures, illustrations, tables, specifications, and schematics contained in this manual are subject to change without notice.

Unauthorized modifications to the gas detection system or its installation are not permitted, as these may give rise to unacceptable health and safety hazards.

Any software forming part of this equipment should be used only for the purposes for which Honeywell supplied it. The user shall undertake no changes, modifications, conversions, translations into another computer language, or copies (except for a necessary backup copy).

In no event shall Honeywell be liable for any equipment malfunction or damages whatsoever, including (without limitation) incidental, direct, indirect, special, and consequential damages, damages for loss of business profits, business interruption, loss of business information, or other pecuniary loss, resulting from any violation of the above prohibitions.

Warranty

Honeywell Analytics warrants the Touchpoint Plus system against defective parts and workmanship, and will repair or (at its discretion) replace any components that are or may become defective under proper usage within 12 months from the date of commissioning by a Honeywell Analytics approved representative* or 18 months from shipment from Honeywell Analytics, whichever is sooner.

This warranty does not cover consumable, batteries, fuses, normal wear and tear, or damage caused by accident, abuse, improper installation, unauthorized use, modification or repair, ambient environment, poisons, contaminants or abnormal operating conditions.

This warranty does not apply to sensors or components that are covered under separate warranties, or to any 3rd-party cables and components.

Any claim under the Honeywell Analytics Product Warranty must be made within the warranty period and as soon as reasonably practicable after a defect is discovered. Please contact your local Honeywell Analytics Service representative to register your claim.

This is a summary. For full warranty terms please refer to the Honeywell Analytics" *General Statement of Limited Product Warranty*, which is available on request.

* A Honeywell Analytics approved representative is a qualified person trained or employed by Honeywell Analytics, or a qualified person trained in accordance with this manual.

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Honeywell is the registered trademark of Honeywell Automation and Control Systems (ACS).

Touchpoint is a registered trademark of Honeywell Analytics (HA).

Find out more at www.honeywellanalytics.com

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Important Safety Information


Chapter 1 – Important Safety Information

The Equipment referred to in this manual contains components and assemblies that are each certified for use in a variety of differing environments, and it is the site owner's responsibility to confirm the suitability of the equipment prior to its installation and use.

The Equipment assemblies referred to in this manual are collectively certified for use in a flammable gas detection system only. Any other use is not currently certified and is not authorized by the manufacturer.

Please check the product rating plate and look for the following marks to ensure that the supplied equipment is suitable for its intended location and purpose:

 Products bearing the CE mark conform to all applicable European Directives as stated on the Honeywell product specific EC Declaration of Conformity.

 Products bearing the UL mark conform to the requirements for Ordinary Locations. The letters C and US mean that the product is certified for use in Canada and the United States of America.



WARNING

FOR SAFETY REASONS THIS EQUIPMENT MUST BE OPERATED BY QUALIFIED PERSONNEL ONLY. READ AND UNDERSTAND THE INSTRUCTION MANUAL COMPLETELY BEFORE OPERATING OR SERVICING THE EQUIPMENT.



ATTENTION

POUR DES RAISONS DE SÉCURITÉ, CET ÉQUIPEMENT DOIT ÊTRE UTILISÉ, ENTRETENU ET RÉPARÉ UNIQUEMENT PAR UN PERSONNEL QUALIFIÉ. ÉTUDIER LE MANUEL D'INSTRUCTIONS EN ENTIER AVANT D'UTILISER, D'ENTRETENIR OU DE RÉPARER L'ÉQUIPEMENT.

Important Safety Information

WARNINGS

- 1) The equipment specified in this manual is only to be installed by the Manufacturer's trained personnel, or by competent persons trained in accordance with the Manufacturer's installation instructions.
- 2) Installation must be in accordance with the recognized standards of the appropriate authority in the country concerned. Refer to local, national and company regulations.
- 3) Do not operate the Touchpoint Plus system or its components outside of their rated operating specification.
- 4) Touchpoint Plus must not be operated in Oxygen enriched atmospheres, i.e. greater than 25% v/v Oxygen.
- 5) All equipment containing a User Interface must be suitably protected from direct sunlight and rain.
- 6) Power Supply Fluctuations are not to exceed DC 18 – 32 V SELV Supply or $\pm 10\%$ of nominal.
- 7) All versions of Enclosure apparatus are electrical Class 1, and must be connected to Protective Earth (Ground).
- 8) The Touchpoint Plus installation must include a means of isolating or disconnecting the input voltage supply. The isolation or disconnection device must be conveniently located close to the system and be clearly labelled. For an AC mains voltage supply, the isolation or disconnection device must disconnect both the line and neutral poles, but maintain earth (ground) continuity.
- 9) The Touchpoint Plus input voltage supply must include over-current protection.
- 10) All cabling must be appropriately rated and approved in accordance with local, national and company regulations, and suitable for the installation. Additionally, cabling must satisfy requirements defined in the manuals of connected field devices, in particular if the field device is certified for use in a hazardous location.
- 11) All signal cables and interconnections must be shielded and the shields terminated only at the unified earth (ground) bus bar situated inside the enclosure
- 12) All conduits and cable armour shall be bonded to protective earth (ground), and care must be taken to avoid ground loops and to avoid contact with cable shielding.
- 13) Cable entry glands, blanking plugs, reducers, adaptors and breather devices must be suitably approved and must not reduce the IP rating or protection levels. Items should not be used if there is a high risk of mechanical damage to the equipment or enclosure.
- 14) Access doors and entry points must be kept closed when the system is energised in normal operation.
- 15) Enclosure locking handle security screws must be fully tightened during normal operation.
- 16) All equipment in this manual is rated to +2000 m (6562 ft) altitude maximum.
- 17) For safety reasons this equipment must be operated by qualified personnel only. Read and understand the Instruction Manual completely before operating or servicing the equipment.
- 18) Touchpoint Plus systems may contain hazardous live terminals. Appropriate precautions should be taken during operation, installation, and maintenance and servicing. Specifically, operators must have appropriate training and experience to be aware of the hazards to which they may be exposed, and of measures to minimise risk to themselves or other people.
- 19) The protection provided by the equipment may be impaired if the equipment is used in a manner not specified or authorised by the manufacturer.

Important Safety Information

WARNINGS

- 20) Be aware that extended exposure of a detector element to certain concentrations of combustible gases and air can introduce stress to the element that may seriously affect its performance, and therefore recalibration should be carried out or the sensor replaced, or both, after an alarm due to an indication of a high concentration.
- 21) When used in a Gas Detection summing up role, the gas reading may be higher than the actual concentration at any one detector head location, or it may be the actual concentration at one specific detector head.

1.1 Cautions

- 1) Touchpoint Plus SMPS, Input and Output Modules have no user serviceable parts. In the unlikely event of a failure, the item must be replaced using only manufacturer supplied parts.
- 2) Do not use sharp objects to operate the touchscreen as this could irreparably damage the User Interface and adversely affect its IP rating.
- 3) Use only soft, damp cloths or screen wipes to clean the Touchpoint Plus. Do not use solvents or abrasives as they will damage the User Interface.
- 4) Once commissioned, Touchpoint Plus is intended for continuous operation.
- 5) Undo the security screws before pulling the locking handle. Failing to do so may irreparably damage the enclosure.

1.1.1 Intended Readers

This Manual should be read by everyone who operates or monitors the Touchpoint Plus gas detection system. Only personnel who have been fully trained by Honeywell are authorized to Install, Set-up, Service, and Test, Repair, or Recondition Honeywell gas detection systems.



Important

Personnel, who work on, or in the area of, the Touchpoint Plus Gas detection system must be made aware of the contents of Chapter 2 – Safety.

Before unpacking the system, please read the documentation that accompanies it.

Important Safety Information

1.1.2 Conventions Used

The following conventions are used in this manual:

“**TPPL**” refers to the Touchpoint Plus Gas Detection System.

“**Start up**” refers to the action of switching on the system ready for use.

“**Restart**” refers to cycling the power off and then on again.

“**Boot up**” refers to the action of starting the software from cold.

“**Reboot**” refers to shutting down and restarting the software without interrupting the power supply.

“**mV Sensor**” refers to mV Bridge Sensor.

“**SELV**” refers to Self-Enclosed Low Voltage devices.

1.1.3 Associated Manuals

This manual should be used in conjunction with any manuals provided with ancillary components and sensors.

This manual is available in 14 user languages:

- Chinese (Simplified)
- Dutch
- English
- French (Canada)
- French (France)
- German
- Italian
- Japanese
- Korean
- Portuguese (Brazil)
- Portuguese (Portugal)
- Russian
- Spanish (Mexico)
- Spanish (Spain)

Safety Hazards, Warnings And Cautions

Chapter 2 – Safety Hazards, Warnings and Cautions

2.1 Safety

Incorrect set-up, maintenance, operation or modification of the Touchpoint Plus gas detection system *or its installation* may constitute a serious hazard to the health and safety of personnel and their environment. It is therefore imperative that the contents of this chapter are thoroughly understood by everyone who has access to the gas detection system or its associated equipment.

When properly installed, this gas detection system enclosure is rated as IP65.

It may be installed in a Pollution Degree 2 (i.e. laboratory, office or control room) or Pollution Degree 3 (i.e. unheated boiler room) environment as defined by IEC/UL/EN 61010–1: Safety requirements for electrical equipment for measurement, control and laboratory use.

In all cases, several hazards may be present when operating or servicing the equipment and extreme caution must be exercised at all times. The hazards that may be encountered include:

- Class 1 electrical hazards (AC 110/220 V, DC 18–32 V)
- Mechanical hazards (Heavy components, swinging access doors)
- Environmental hazards (toxic atmospheres)
- Fire and Ignition hazards (Touchpoint Plus is **not** ATEX/IECEx Zone 1 certified, and cannot be used in flammable atmospheres, or where oxygen concentrations >25% v/v O₂)

2.1.1 Warnings and Cautions

Safety of this equipment is reinforced by the use of safety labels that are fixed to the equipment in a visible manner. The type of safety labels used and their location is detailed in this chapter. The degree of seriousness of the hazard is indicated in this manual by the use of the following signal words accompanied by a suitable hazard symbol:

Danger

Indicates an imminent hazard that, if not avoided, is **extremely likely to result** in death or serious injury.

Warning

Indicates a potentially hazardous situation that, if not avoided, **could result** in death or serious injury.

Caution

Indicates a potentially hazardous situation that, if not avoided, **may result** in minor or moderate injury. It is also used to alert the user against unsafe working practices and potential damage to equipment.

Safety Hazards, Warnings And Cautions

2.1.2 Safety Hazards

The following specific hazards are associated with the installation and use of this equipment:



Danger – Ignition Hazard

Touchpoint Plus is **Not ATEX/IECEx certified**, and it may only be installed in safe areas where there are no flammable atmospheres, and no oxygen concentrations $>25\%$ v/v O_2 .



Warning – Lethal Voltage Present

All power supplies must be hard wired and must include a circuit breaker (RCD / RCCB) and, close by and unobstructed, a means of manually isolating and locking-out the power supply without breaking the protective earth (ground) connection.

Removable plug/socket connection is not permitted under any circumstance.



Warning – Lethal Voltage Present

Lethal current may be present in this equipment when electrical power is applied. There is a danger of death or injury from electrical shock. Isolate power before opening electrical access panels. Ensure residual current is fully discharged before touching live terminals.



Warning – Lethal Voltage Present

Lethal current may be generated both internally and externally to the system. All installations, including enclosures and external units, must be grounded to protective earth, and must be capable of staying earthed (grounded) when the power supply is interrupted.

The Protective Earth (Ground) symbol is shown to the left, and always has a green background. Do not confuse it with the chassis earth symbols shown below it.



Warning – Toxic Waste and Harmful By-Products

The Touchpoint Plus system and/or its sensors may become contaminated by the ambient environment in which it or they are used. It is the Customer's sole responsibility to ensure that all appropriate safety precautions are taken before handling any components or transferring them to any other party.

Safety Hazards, Warnings And Cautions

2.1.2 Safety Hazards (Cont.)

The following general hazards are associated with the use of this equipment:



Warning – Fire or Explosion Hazard

Battery may explode if mistreated. Do not disassemble or dispose of in fire.



Warning – DO NOT USE WATER

DO NOT USE WATER if a lithium battery overheats or burns, as this may make the fire worse and may cause an explosion. Evacuate the area and call Emergency Services.



Caution – Health and Environmental Hazards

This equipment contains a number of potentially toxic substances that may pose a health or environmental hazard if exposed to very high temperatures, VOCs or corrosives, or if improperly handled or carelessly disposed of.



Caution – Risk of Injury and Damage

Each Touchpoint Plus enclosure is heavy and weighs considerably more when packed. Ensure that a Manual Handling Risk Assessment is carried out before moving or installing the system, and ensure that the enclosure is fitted securely to a suitable surface.



Caution – Risk of Eye Injury

Touchpoint Plus uses high energy AC and DC currents that may cause arcing and sparks if shorted out. Always wear eye protection when the enclosure is open.



Caution – Risk of Hearing Damage

Touchpoint Plus can be used to control loud alarms and sirens. Always wear hearing protection when working in the vicinity of loud noises.

Safety Hazards, Warnings And Cautions

2.2 Location and Description of Warning Labels

2.2.1 Safety Warning Labels

In accordance with the requirements of the European Standard EN 60825–1, appropriate warning labels are mounted in specified locations on the equipment. This is to indicate conditions under which the user could be subjected to electrical hazards.

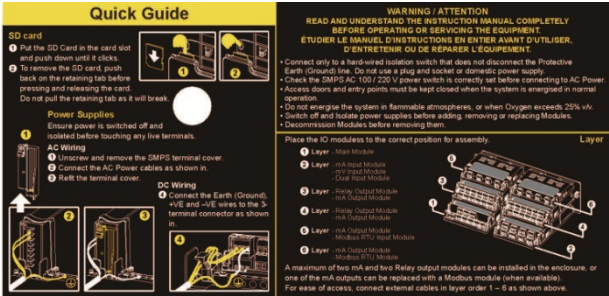


Figure 1. Quickstart Guide Label
(Not to Scale)



Figure 2. SMPS Voltage Warning Label
(Removed During Installation)



Figure 3. Protective Earth (Ground) Point



Figure 4. Equipment Earth (Ground) Point

This Protective Earth (Ground) location point label is used inside the system and is not normally visible to the operator.

This Equipment Earth (Ground) location point label is used inside the system and is not normally visible to the operator.

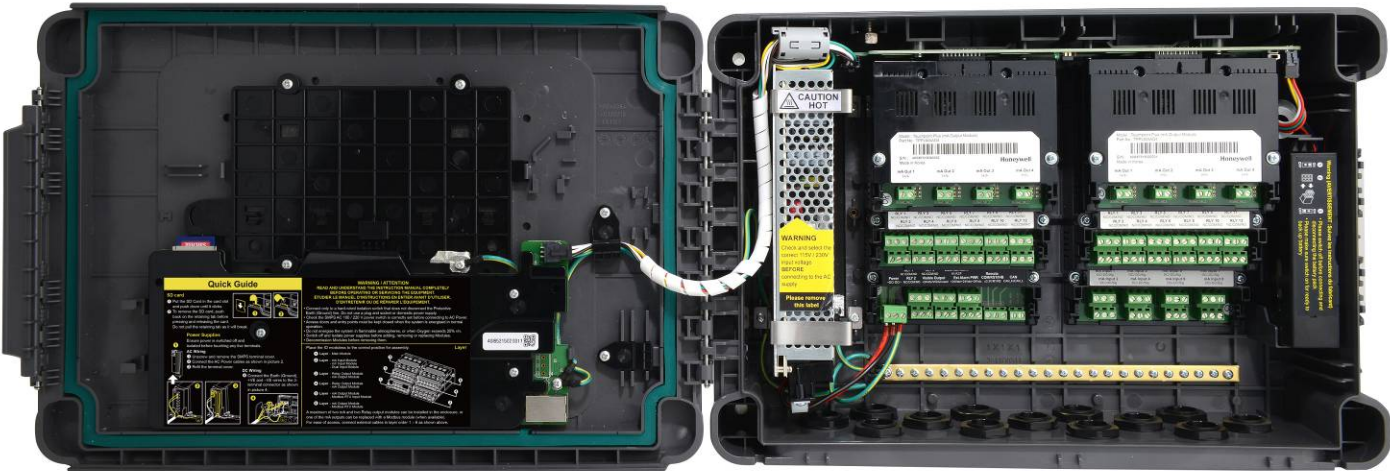


Figure 5. Internal Label Positions

Safety Hazards, Warnings And Cautions

2.3 Electrical Hazards

Gas detection systems contain electrical supplies that are potentially dangerous and hence precautions must be taken to prevent the risk of electrocution.

2.3.1 General Precautions

- Read the relevant manual before beginning any operating or service procedures.
- Only personnel trained and certified by Honeywell are authorized to service, fit or remove internal parts.
- Only the minimum number of trained personnel, consistent with safety, should have access to the area while work is being carried out. If necessary, erect warning signs and barriers.
- Follow accepted working procedures and codes of practice as well as the electrical safety code for the site where the equipment is installed.
- Never operate the equipment under normal conditions with access panels removed or shorting links fitted.
- Do not "Live Test" without a Safe System of Work (SSoW).
- Always keep the area around the equipment dry and free of obstructions.
- Switch off and Isolate the equipment if water ingress is suspected or confirmed.
- Never operate the equipment if any Mains power cable is frayed or damaged.
- Never wear wristwatches, rings, bracelets, or other jewelry when working around electrical circuits or moving parts.
- Take anti-static precautions when working on electronic circuits.
- Never work on electrical equipment alone.

2.3.2 Component Testing and Replacement

Before carrying out any electrical testing or component replacement:

- Read this Manual to become familiar with the location of high voltage components.
- Isolate the system at the main circuit breaker, lock it in the "Off" position, and attach a notice indicating that maintenance work is in progress.
- Always wait for 5 minutes after isolating the equipment to ensure that stored energy has dissipated.
- Never assume the polarity of cabling or replacement components. Refer to electrical schematics or contact Honeywell for confirmation.
- Use only Honeywell approved replacement parts.



Warning – Unauthorised Personnel

Only Honeywell trained and certified maintenance technicians are authorised to carry out component testing and replacement. Unauthorised work may result in a potentially dangerous situation and will invalidate the manufacturer's warranty.



Anti-Static Precautions

Antistatic Precautions are required to prevent severe damage to electronic components.

Safety Hazards, Warnings And Cautions

2.3.3 Antistatic Precautions

As with all modern electronic circuits, the Printed Circuit Boards (PCBs) in Touchpoint Plus systems utilize some static-sensitive components that can be severely damaged if subjected to static discharge. Static can be generated on the human body by friction or movement and is discharged through the first contacted route to earth. It can also jump gaps between items of differing electrical potential.

Static damage is not always immediately apparent and can cause component failure at any time after the static discharge has occurred. It is, therefore, very important that everyone takes the following precautions when handling PCBs:

- An industry approved antistatic wrist strap, containing a resistive component greater than 1Megohm, must be worn and connected to an effective earth (ground) point. The continuity between the strap and earth (ground) must be checked regularly.
- PCBs must only be handled by their non-conductive edges. Do not allow any components, conductive tracks or contacts to come into proximity with the body, clothing, machinery, power source or any material other than a static-dissipative mat.
- With the exception of assemblies containing batteries, anti-static packaging must be used for transporting PCBs and Integrated Circuits (ICs). All Touchpoint Plus electronic components are shipped in appropriate packaging that can be re-used when returning items for test or repair.
- Avoid wearing clothing manufactured from, or containing a high proportion of, man-made fibers. These can build up a high static potential that may not be discharged through the body or wrist strap.

An effective earth (ground) point is the protective earth (ground) bus bar inside the enclosure. This can be used to connect a suitable anti-static wrist strap provided that the Gas detection system is connected to protective earth (ground) via the mains power supply cable.



Important

If installed correctly, the equipment earth (ground) point is connected directly to mains earth (ground) via protective earth and the mains power supply cable. It is not dependent on the position of the Isolator switch or circuit breaker.

2.3.4 Good Practice

After switching off the system, it is good practice to wait at least 15 seconds before switching it on again. This allows the circuits and RAM to discharge adequately before being powered-up again. Failing to do so may cause data corruption.

2.3.5 Lithium Battery Hazard

Lithium batteries are fitted to Touchpoint Plus as backup power sources.

Replace the factory installed battery pack **TPPLOIBB** with Honeywell Analytics Asia Pacific replacement battery pack part no. **TPPLSIBB** and the PCB CMOS battery with type **CR2032** only.

Use of other batteries may present a risk of fire or explosion.



Lithium Battery Toxic and Fire Hazards

Lithium batteries may cause severe injury or death if ingested, and may catch fire or explode if mishandled, recharged, burned or disposed of incorrectly.

Always handle lithium batteries with care, keep them out of the reach of children, and dispose of them carefully in accordance with local regulations.

Safety Hazards, Warnings And Cautions

2.4 Product Compliance

This product complies with the following standards and directives.

Other safety directives may apply to the complete system installation if an OEM's product is integrated into other equipment or machinery.

Safety	Compliance
Electrical Safety	CAN/CSA C22.2 No. 61010-1 and No.142 UL 61010–1 (3 rd Edition); UL508 IEC/EN 61010–1 (3 rd Edition)
EMC/RFI	EN 50270
Low Voltage Directive	IEC/EN 61010–1 (3 rd Edition)
Gas Performance*	ISA 12.13.01 and CSA C22.2 No. 152

* ISA 12.13.01 and CSA C22.2 No.152 approval is applicable only to mV sensors Model 705 and MPD or any suitably certified mA sensor.

Note: The Equipment referred to in this manual contains components and assemblies that are each certified for use in a variety of differing environments, and it is the site owner's responsibility to confirm the suitability of the equipment prior to its installation and use.

Please check the product rating plate and look for the following marks to ensure that the supplied equipment is suitable for its intended location and purpose:



Products bearing the CE mark conform to all applicable European Directives as stated on the Honeywell product specific EC Declaration of Conformity.



Products bearing the UL mark conform to the requirements for Ordinary Locations. The letters C and US mean that the product is certified for use in Canada and the United States of America.



Important

Read and understand the instruction manual before operating or servicing the equipment.

Safety Hazards, Warnings And Cautions

2.5 Conditions of Use

This Touchpoint Plus equipment should only be operated under the following circumstances:

- By properly trained personnel.
- Under approved conditions.
- With due authorization.
- Using approved maintenance and servicing procedures.

2.5.1 Training of Personnel

Honeywell and / or its distributors can provide training for operators and maintenance personnel. Personnel who have been trained in operation and maintenance shall be limited to carrying out only those procedures and tasks taught during the training course. Honeywell certified maintenance technicians must carry out all other tasks.

Honeywell can also provide additional or advanced training. Retraining is recommended periodically and whenever equipment is upgraded.

2.5.2 Conditions Satisfying Local, National and International Safety Regulations

Approved conditions must satisfy the requirements of applicable national and international safety standards and statutory requirements relating to electrical, EMC, and health hazards. In addition, they must satisfy the requirements of the Site Safety Officer and the local safety regulations.

2.5.3 Due Authorization

Before any production, maintenance, or servicing procedure is carried out; written authorization must be obtained from one of the following personnel to confirm that the proposed task satisfies the necessary safety conditions:

- A competent authorized person having a professional qualification in an appropriate technical discipline.
- The Factory, Technical or Engineering Manager responsible for the working area.
- The Site Safety Officer or an authorized Honeywell representative or approved distributor.

2.5.4 Approved Maintenance and Servicing Procedures

Approved Maintenance and Servicing Procedures are those stipulated in this manual or as authorized separately by Honeywell.

It may be necessary to establish a temporary Locally Controlled Area (LCA) to restrict access during maintenance, testing or service of this equipment.

System General Description

Chapter 3 – System General Description



Figure 6. Touchpoint Plus Wall-Mounted Controller

The Touchpoint Plus is an entry level (or upgrade) touch-screen digital Controller for general industrial and commercial gas detection systems. It has eight input channels, with a further eight channels available through an optional expansion unit*.

It can handle a wide range of milliamp, millivolt, and catalytic sensors through analogue inputs, and it can control various outputs such as audible and visible signals and solenoid valves.

The cabinets are constructed from high-impact plastic and have fully-sealed, easy opening access. They are supplied with a wall mounting or can be directly mounted to any solid vertical surface or rack. Cable entry is via entry glands on the lower side.

Touchpoint Plus is rated IP65, which means that it is dustproof and can be subjected to low-pressure water without significant ingress. This makes it particularly suited to offices, control rooms and unheated boiler rooms.

*Currently Touchpoint Plus is only available as a stand-alone Gas Detection System, but please contact Honeywell Analytics for details about future upgrades. (The expansion box is currently planned for release in late 2015.)

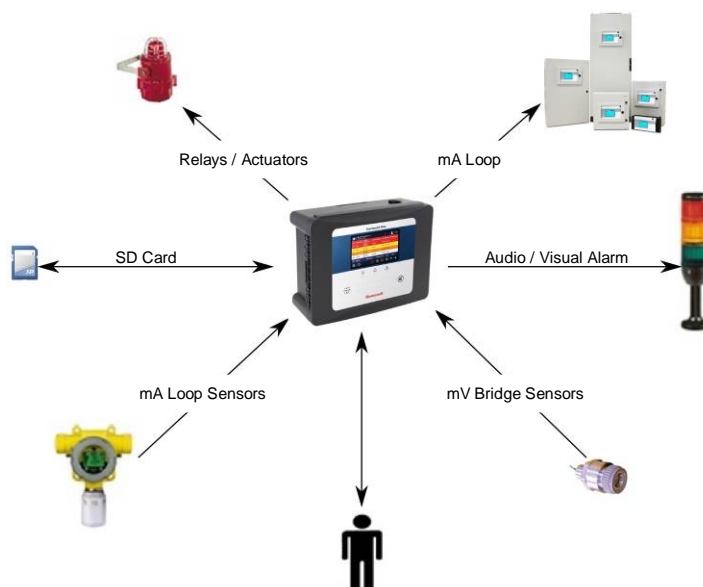


Figure 7. Typical Installation Options

System General Description

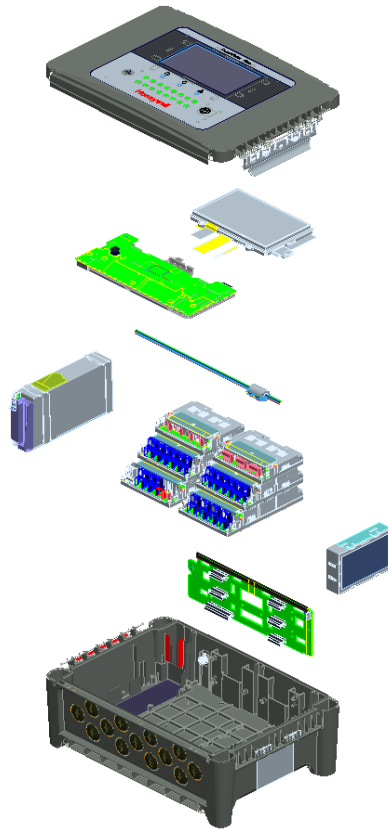


Figure 8. TPPL Controller Exploded View

Both the Touchpoint Plus and its optional expansion unit have the option for AC, DC and battery backup power supplies.

Note: The expansion unit will be available from late 2015.

Other features:

- Color LCD Touch Screen with multi-language GUI and menus
- Password protection
- Flexible Mains Power Input: 50 – 60 Hz 110/220 V ~ (AC), 18 – 32 V $\overline{\text{---}}$ (DC), Max 105 W
- Up to 8 channels of Analogue Input (0–22 mA, Bridge mV for Cat bead)
- 2 or 3-wire signal inputs
- Up to 24 channels of user configurable relay controlled Output
- Up to 8 channels of configurable mA Output
- Alarm update on Acknowledge
- Automatic Self-Diagnostic with error codes
- Event recording
- SD Card

System General Description

3.1 Equipment Specification

3.1.1 Power Requirements

The Touchpoint Plus system is designed to operate on a single phase, 50 to 60 Hz, 110/220 V~ (AC) supply with a typical power consumption of less than 105 W.

Alternatively it can be connected to an 18–32 V $\overline{\text{DC}}$ supply with typical power consumption less than 105W.

The system can contain an optional backup battery to guard against short-term power disruption.

Input	Voltage Range AC	AC 110/220 V manually switchable 300 VAC surge for 5 sec without damage
	AC Frequency Range	50 – 60 Hz \pm 6%
	AC Current Draw (typ.)	3 A @ 115 VAC, 2A @ 230 VAC
	Cold-start Current (typ.)	40 A @ 230 VAC
	Leakage Current	<2 mA @ 240 VAC
Output	DC Voltage	24 V
	Rated Current	6.5 A
	Current Range	0 – 6.5 A
	Rated Power	156 W
Protection	Overload	110 – 150 % rated output power
	Over-Volt	27.6 – 32.4 VDC Hiccup mode, which recovers automatically when the fault is removed.

Table 1. Power Supply (SMPS RS–150–24) Electrical Ratings

No	Modules	Qty	Power (W)	Remarks
1	UI Module	1	3.6	Max
2	Main Module	1	1.7	Max
3	mA Input Module	1	0.9	Max (not including detector power)
4	mA input Field Device Power	8	40.0	Max
5	mA Output Module	2	8.6	Max
6	Relay Output Module	2	2.0	Max
7	Charging power for backup battery pack	1	5.3	Max
8	Audio/Visual Alarm	4	28.8	Max
9	SMPS Power Loss	—	14.0	Max
MAX TOTAL			104.9	—

Table 2. System Power Calculations

System General Description

3.1.2 Weights

Note: Based on one input module, two mA output modules, two output relays, SMPS and backup battery for the basic unit and expansion unit respectively.

	TPPL Basic Unit	TPPL Expansion Unit
System alone	8.5 Kg (18.7 lbs)	8 Kg (17.6 lbs)
System with packaging	9 Kg (20 lbs)	8.5 Kg (18.7 lbs)

Table 3. System Weights

3.1.3 Dimensions

External Dimension	Millimeters	Inches
Depth	156	6.2
Length	426	16.9
Width	300	11.8

Table 4. System Dimensions

3.1.4 Ambient Operating Temperature

–10 °C to +55 °C (14 °F to 131 °F)

3.1.5 Overall Ambient Operating Humidity

5 % to 95 %RH, non-condensing

3.1.6 Storage Conditions (Without batteries)

–25 °C to +60 °C (–13 °F to 140 °F), @ 5 % to 95 %RH, non-condensing

3.1.7 Storage Conditions (With batteries)

1 year: –20 °C to +25 °C (–4 °F to +077 °F)
 3 months: –20 °C to +45 °C (–4 °F to +113 °F)
 1 month: –20 °C to +60 °C (–4 °F to +140 °F)

3.1.8 IP Rating

The enclosures are sealed to IP65 when appropriate cable entry glands are used.

3.1.9 Construction

The system cabinets are constructed from PC ABS plastic with a secured quick release front access door panel.

The Controller door panel holds a touch sensitive color LCD with a membrane cover over additional buttons, LEDs and an audible warning horn.

Inside the Controller cabinet is a Switched-Mode Power Supply (SMPS) providing a nominal DC 24 V output, an optional Lithium-ion backup battery, a Main Module, a mA/mV Input Module, two mA Output Modules, two Relay Modules, protection fuses, and the control and user interface electronics.

The optional expansion unit holds the same modules and optional backup battery, but has no controller or user interface.

Both enclosures contain a common Earth (ground) rail that must be bonded to Protective Earth (Ground) through an isolation switch that does not disconnect the Earth line.

System General Description

3.1.10 Touchpoint Plus Packaging

- Touchpoint Plus outer packaging is made from cardboard. Facilities for recycling are widely available.
- Touchpoint Plus inner packaging is made from Stratocell[®], Low-Density Polyethylene (LDPE) foam. The foam can be recycled into new Stratocell[®] where such recycling facilities exist.

3.1.11 Packaging Components for Return to Manufacturer

Honeywell is unable to accept any consignment that does not conform to the European Classification, Labeling and Packaging (CLP) Regulations (EC) 1272/2008.

Please consult your distributor, supplier, or the manufacturer if you require further advice.

3.1.12 Disposal (WEEE Directive)



The system contains Lithium batteries and a number of homogenous hazardous materials. These should be disposed of carefully in accordance with the WEEE Directive and local laws and guidelines. Under no circumstances can they be disposed of as domestic waste.

3.2 System Construction

This figure shows the basic building blocks of the Touchpoint Plus system. The optional Expansion Unit will not have any of the items seen on the left hand (door) panel.

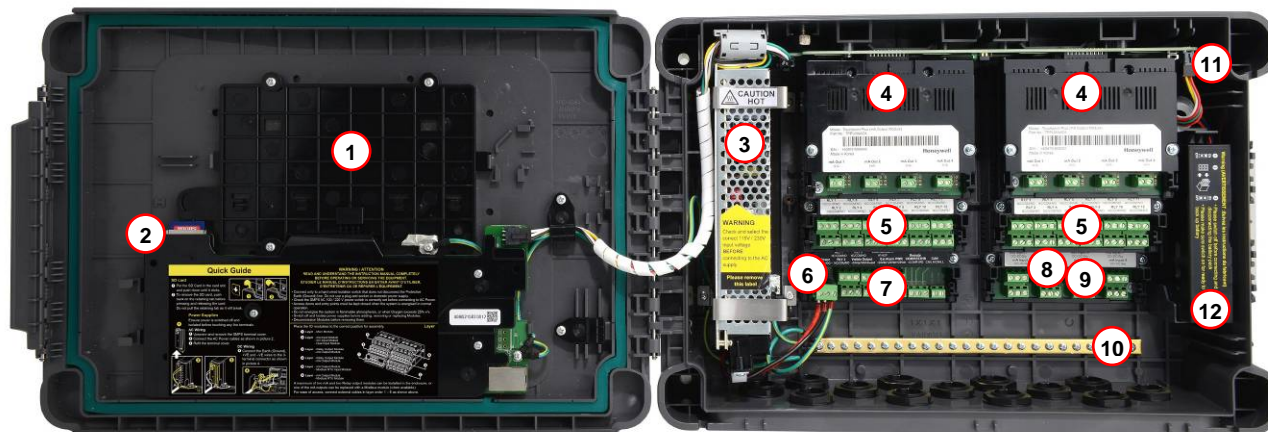


Figure 9. System Layout Before Installation

1	Touchscreen	7	Main Module
2	SD Card	8	mA Input Modules
3	SMPS	9	mV Input Modules
4	mA Output Modules	10	Earth (Ground) Bus Bar
5	Relay Output Modules	11	Battery On / Off Switch
6	Power Terminal	12	Backup Battery

System Mechanical Installation

Chapter 4 – System Mechanical Installation

The system can be directly wall-mounted or on an optional mounting fixture. Whichever method is chosen, the mounting must be sound, secure, and capable of supporting the weight of the enclosure plus the weight of any cables and glands.

When choosing a location, it must be easily visible and accessible, with room to mount an external power isolator. There must also be room to fully open the access door, which opens to the left, and room to easily access the door locking handle and its securing screws, which are situated on the right. If using the expansion unit (available late 2015), there must be room to mount both boxes side-by-side with space between them to access the locking handle and its securing screws.

The units should be mounted so that the screen can be easily accessed and seen, but they should not obstruct accesses, walkways or exits.

Although the units are IP65 when installed correctly, they should be mounted away from heat sources, out of direct sunshine, and should be protected from rain, severe weather, steam or excess humidity and condensation.

These units have only passive cooling, so an adequate airflow must be maintained to prevent overheating.

Assembly	IP	NEMA	Pollution Degree	Remarks
Wall mounted cabinet	65	4X	2	When properly installed using the appropriate cable entry glands



Caution

It is the Customer's responsibility to ensure that the equipment is correctly installed, and that cable entry glands or blanks of the appropriate IP rating are correctly used.

Failure to do so will invalidate the quoted IP / NEMA / Pollution ratings and may invalidate the warranty.



Caution

The units as supplied have two hex-socket securing screws in the access door handle, and these have to be undone prior to opening the handle. Failing to do so could cause irreparable damage to the housing.

The handle must be correctly locked and the screws must be correctly tightened when the unit is in operation. Failing to fully secure the enclosure is unsafe and will invalidate product certification.

System Mechanical Installation

4.1 How to Open and Close the Enclosure

- 1) Ensure that it is safe to open the enclosure and, if necessary switch off and isolate electrical power.
- 2) Unscrew the two 3mm Hex socket security screws (1) until they become loose (2).
- 3) With a gloved hand only, pull the handle until it comes free (3). Do not apply undue force.
- 4) Open the enclosure door fully.



Figure 10. Undoing the Security Screws and Opening the Enclosure

- 5) Closure is the reverse of this procedure, but care must be taken not to exert undue force, and **you must not** press on the membrane or touch screen areas.

Note: The door recess has an environmental seal that requires some pressure to close the door correctly. The enclosure handle is the primary method of applying this pressure but you can assist it by pressing on the door edge directly above the handle as you press on the handle itself.

System Mechanical Installation

4.2 Wall Mounting Requirements

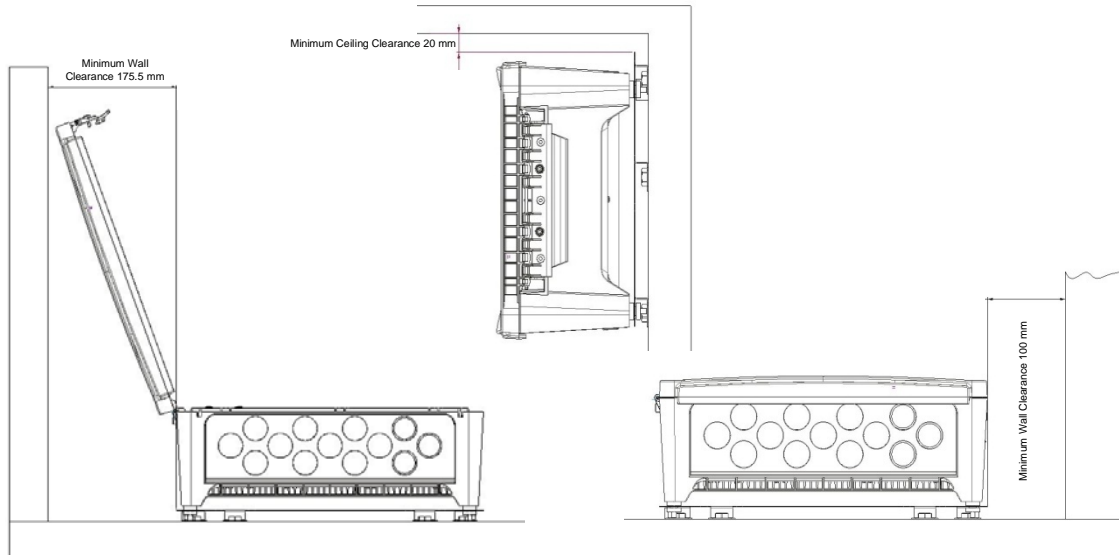


Figure 11. Installation Clearance Measurements

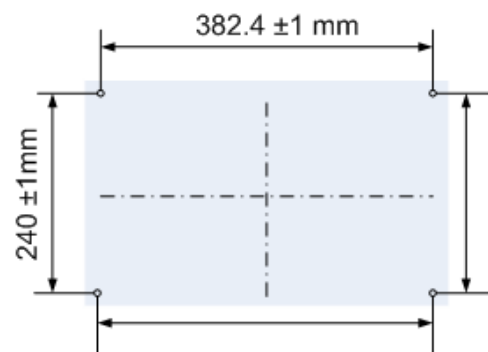


Figure 12. Wall Mounting Template

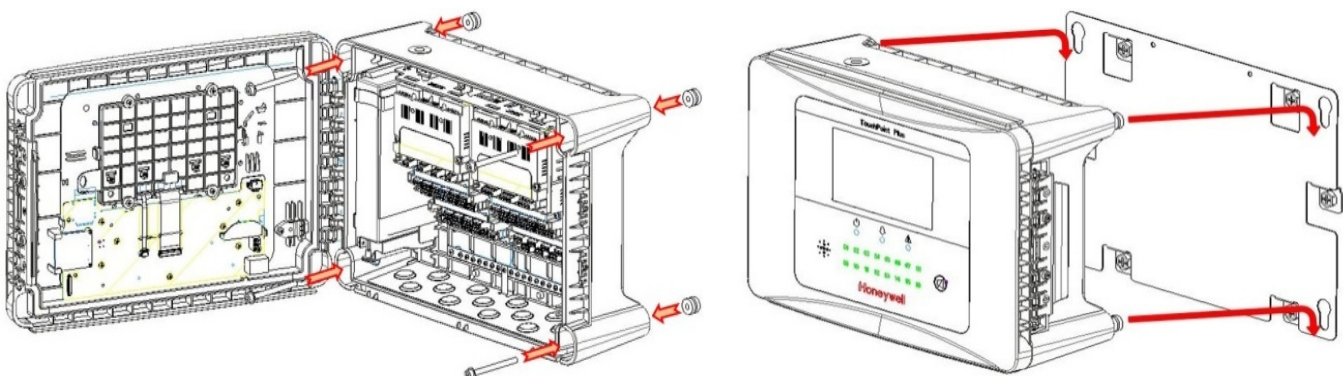


Figure 13. Wall and Plate Mounting Points

You can use the wall mounting plate as its own template and location guide, and you should ensure that the mounting bolts are adjusted to fit the plate bayonet holes before fixing the plate to the wall.

System Mechanical Installation

4.2.1 Wall Mount Fixings

You will require the following locally sourced items to install the Touchpoint Plus:

Tool to undo the enclosure access handle security screws:

- 3 mm Hex key

Suggested Fixings to screw the enclosure to the wall only:

- Screw Max. Dia: 6.4 mm (#14) dome or cheese head screw
- Screw Min. Length: 76 mm (3 in.) – Normal fix
- Washer Max. Dia: 14.3 mm (0.56 in.)

Note: The sizes above are given to allow for clearance in the TPPL Enclosure. The actual length and type of fixing should be determined by the surface material and the type of anchor required.

Suggested Fixings for using the Mounting Plate:

For the plate, choose fixings appropriate to the surface and the weight of the enclosure plus cables. You will also need to use suitable bolts, washers and lock nuts (see diagram below).

Ideally you will mount the enclosure and cables on a ≥ 20 mm ply board to allow cable troughs to be used.

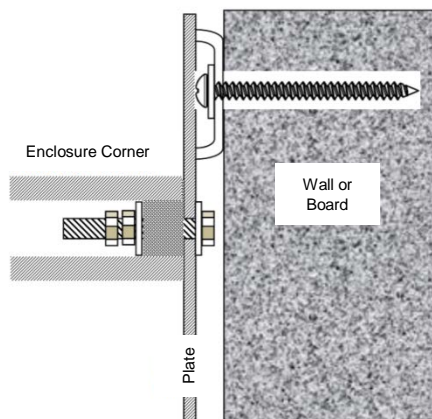


Figure 14. Fixing Orientation When Using the Optional Mounting Plate

Note:

You should ensure that washers between the TPPL enclosure and the wall or mounting plate are sufficiently large to spread the load evenly.

- For metal conduit, use a metal ground plate (i.e. Part No: TPPLMGND).
- For external visual/audio outlet, ensure IP65 is maintained (i.e. Part No: M-700123).
- For cable gland, use type PG16 and tighten to 44.2 lb-in torque.

Electrical Power And Interfacing

Chapter 5 – Electrical Power Connection and Interfacing



Warning – Electrical Shock Hazard

All power supplies must be hard wired and must include a circuit breaker (RCD / RCCB), and (close by and unobstructed) a means of manually isolating and locking out the power supply without breaking the protective earth (ground) connection.

Removable plug and socket connection is not permitted under any circumstance.



Warning – Electrical Shock Hazard

Lethal current may be present in this equipment when electrical power is applied. There is a danger of death or injury from electrical shock. Isolate power before opening electrical access panels. Ensure residual current is fully discharged before touching live terminals.



Warning – Electrical Shock Hazard

Lethal current may be generated both internally and externally to the system. All installations, including remote units and cables, must be connected to protective earth, and must be capable of remaining so when the power supply is interrupted.

Protective earth is shown by the green symbol on the left.



Warning

Honeywell can accept no responsibility for any damage or injury caused by incorrect or faulty wiring. It is the customer's responsibility to provide appropriate power supplies to the TPPL and detectors.

5.1 Power Connection

The TPPL systems are factory set to operate at a manually switchable voltage of AC 110/220 V on single phase, 50 to 60 Hz supplies. They can also be connected to DC 18 – 32 V SELV without backup battery or DC 24 – 32 V SELV if using the backup battery option.

All systems have a typical peak power consumption of less than 105 W, and must be directly connected to supplies via a Main Isolator Switch that leaves protective earth (ground) permanently connected. The circuit should incorporate a Residual Current Device or Residual Current Circuit Breaker (RCD or RCCB).

TPPL systems are not certified for connection to domestic power supplies.



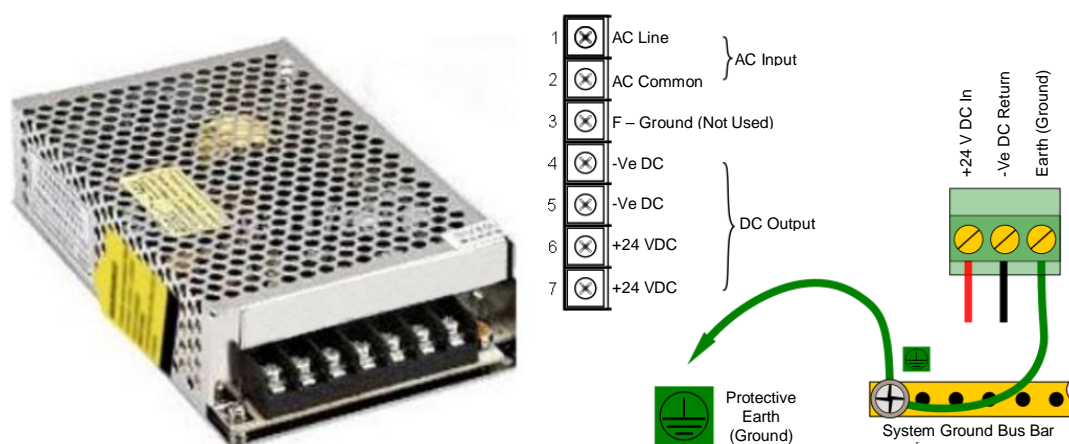
Warning

The system is normally supplied with the voltage pre-set to the customer's specification. If the supplied voltage is incorrect, it must be altered prior to connecting to the mains power supply.

Electrical Power And Interfacing

5.1.1 AC Power Supply

To confirm or alter the pre-set operating voltage, open the system front cover, locate the SMPS transformer on the left side and, if required, change the voltage selector using a screwdriver at the point shown by the yellow and black label below:



Note: Mains Earth (Ground) must only be connected to the protective earth (ground) rail, and not to the SMPS.

Regional power cable wires are colored in accordance with the following code:

Wire	Europe	USA	CAN	India/Pakistan
Protective Earth (Ground)	Green + Yellow	Green	Green	Green
Isolated Earth (Ground)	—	Green + Yellow	Green	—
Neutral	Blue	White	White	Black
Line	Brown	Blue, Red, or Black	Red or Black	Red, Yellow, or Blue

Table 5. Regional Power Cable Colors

Before making any electrical connections or changes ensure that:

- the mains supply isolator switch is in the **Off** position
- the system is set up to operate at the correct voltage

Refer to *Ch. 3.1.1 Power Requirements* for further information on system electrical specifications.

Note 1: Input voltage of less than DC 23.5 V will fail to charge the backup battery, and it will generate a “battery unchargeable” warning message.

Note 2: Field detectors may need their own power supplies if they exceed 15 W per channel or a combined total of 40 W. Refer to *Table 7: mA Input Module Connections* for further information.

Electrical Power And Interfacing

5.1.2 DC Power Supply

It is possible to power the Touchpoint Plus controller directly from a DC 18 – 32 V supply without using AC supplies at all. However, batteries alone may quickly drop below the minimum DC 18 V requirement when under load.

Note: The system must still be connected to protective earth (ground) when using an external DC supply.

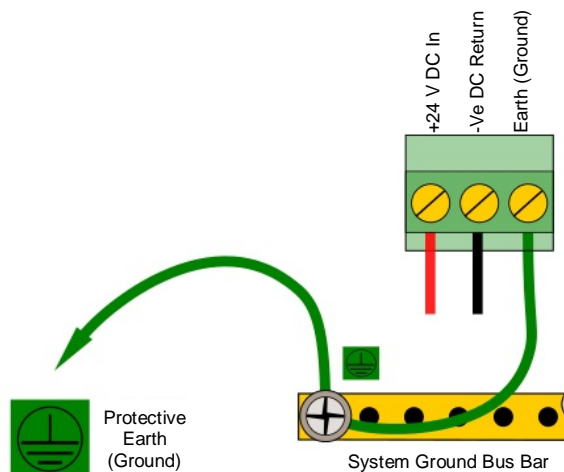


Figure 16. Connections for DC 24 V Supply

5.1.3 Backup Battery Pack

The Touchpoint Plus can have an optional rechargeable 24 volt Lithium-Ion Battery Pack. This would normally be charged by the SMPS, but can be charged by a separate DC 23.5 – 32 V supply.

Note: The backup battery requires minimum 24 V input to fully charge, and it has a non-replaceable 15 A over-current protection fuse so do not exceed 32 V, 5 A charging input.



Danger

In the event of Lithium batteries overheating:

DO NOT USE WATER as this can cause them to burn violently or they may explode.



Important

The battery should be charged at **DC 24 – 32 V**. The backup battery will not be fully charged and the backup time will be reduced if the charging supply is <24 V.

Electrical Power And Interfacing

5.2 Cabling Requirements



Warning

All cabling shall be appropriately rated and approved in accordance with national and local regulations. Additionally, cabling must satisfy the requirements defined in the manuals of connected field devices, particularly if the field device is certified for use in a hazardous location.

Signal cables should be shielded to avoid spurious signals, and shall be bonded to protective earth (Ground). Care must be taken to avoid Ground feedback loops.

5.2.1 AC Mains Voltage Power Cables

Use a properly rated AC power (mains) cable, certified and installed in accordance with local and national regulations. The Touchpoint Plus terminals will accept only copper wire sizes in the range 0.4 – 4 mm² (solid core), 0.4 – 3 mm² (stranded core), or 21 – 12 AWG ($T_{amb} > 80^{\circ}\text{C}$). The mains terminals should be torqued to 1.35 Nm (11.9 lb-in).

5.2.2 DC Power Cables

Use a properly rated DC power (mains) cable, certified and installed in accordance with local and national regulations. The Touchpoint Plus terminals will accept only sizes 0.9 – 3.3 mm² (solid or stranded copper cores), or 18 – 12 AWG ($T_{amb} > 80^{\circ}\text{C}$). The mains terminals should be torqued to 0.5 Nm (4.4 lb-in).

5.2.3 Field Device Cables

Field Device cabling (sensors, lights, solenoids, etc.) should be appropriate to the zone classification, and in accordance with the device manufacturer's recommendations. Refer to local and national regulations where appropriate, and to the device user manual.

All sensor field cables must be screened and earthed (grounded) in order to:

- ensure correct operation of the system
- avoid spurious signals
- provide lightning protection
- Meet European Standards for RFI and EMC

The I/O modules will accept only copper wire sizes to a maximum of 2 mm² or 14 – 30 AWG, with the terminals torqued to 0.5 Nm (4.4 lb-in).

Ensure that the maximum loop resistance is not exceeded, as specified by the device manufacturer.

Ensure that the correct power level is present at the field device, as specified by the device manufacturer, and does not exceed the TPPL supply limit of 15W per channel individually or 40 / 68 W in total. (See the notes under *5.2.5 Main Module Connections* for more details about power consumption and availability.)

I.e. if a device's supply requirement is 24 VDC 0.5 A, then the power requirement is $24\text{ V} \times 0.5\text{ A}$ ($V \times I$) = 12 W. If you use 240m of AWG 22 cable ($R = 0.05\text{ }\Omega/\text{m}$), the power line dissipation is $0.05\text{ }\Omega/\text{m} \times 240\text{ m} \times 0.5^2\text{ A}$ ($R \times I^2$) = 3 W. Therefore the total power requirement is 15 W (12 + 3).

You should also test the cable resistance in situ as its actual resistance is relative to T_{amb} (taking into account any added end of line (EOL) resistance).

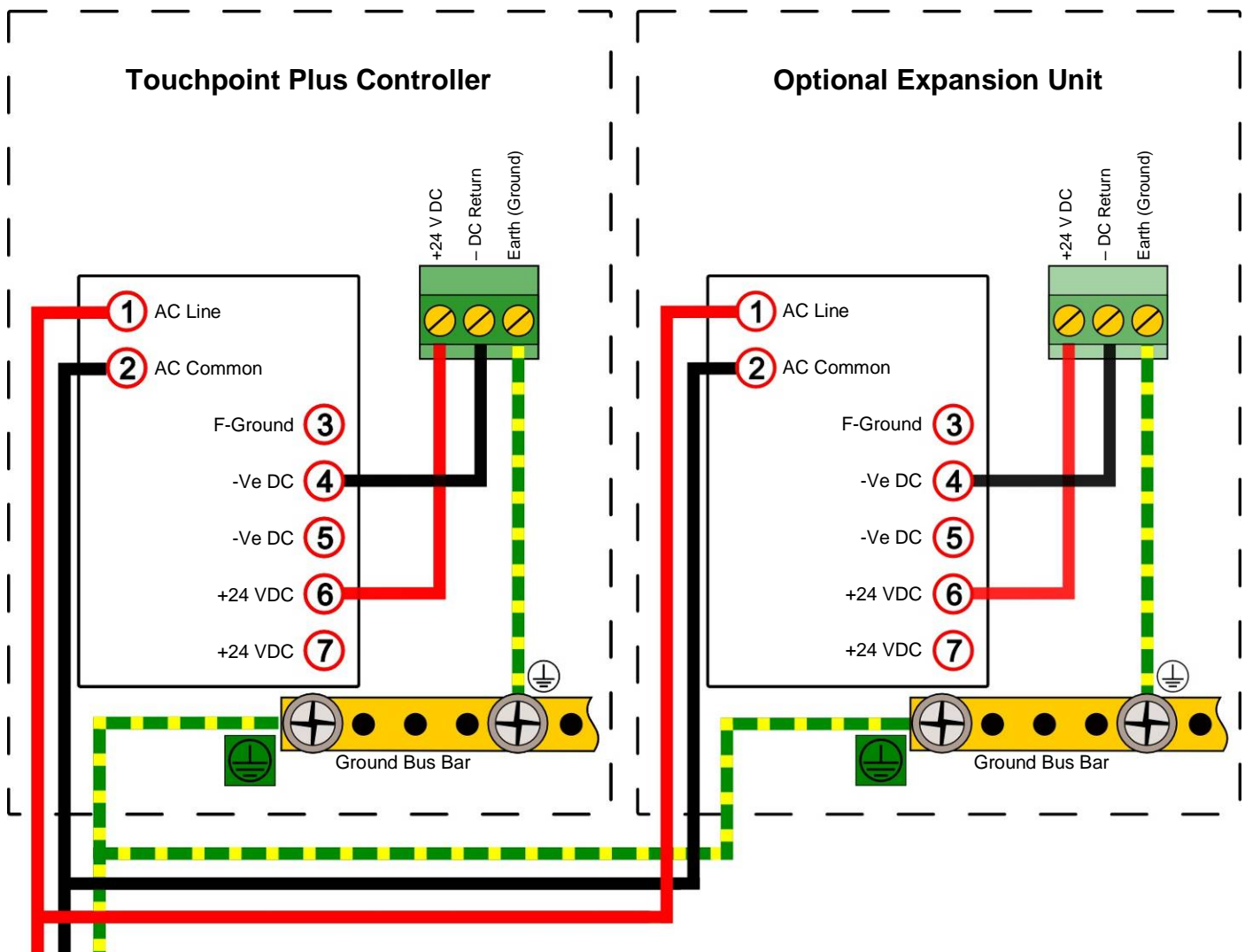
Electrical Power And Interfacing

5.2.4 Optional Expansion Unit Connection (available late 2015)

In general, the expansion unit should have the same cabling and similar power requirements as the Controller:

- 2-core cable plus Earth
- Shielded signal cables
- <10 meters from the controller
- avoid Earth (Ground) loops

The SMPS can deliver 150 W maximum, however a basic unit and an expansion unit each need 105 W so must be wired as shown below when using AC Mains input.



Note: The SMPS is attached to chassis ground and does not need a separate ground connection.

Figure 17. Connecting the Touchpoint Plus and Optional Expansion Unit to a Mains Supply

Electrical Power And Interfacing

5.2.5 Main Module Connections

Input / Output	Field device	Label	Terminal
Power	24 VDC	+DC	1
	GND	–DC	2
	Earth	–	3
Channel Relay 001 (Alarm, Fault, Warning Or Inhibit)	—	NC	4
	—	COM	5
	—	NO	6
Channel Relay 002 (Alarm, Fault, Warning Or Inhibit)	—	NC	7
	—	COM	8
	—	NO	9
System Relay 003 (System Failure)	—	NC	10
	—	COM	11
	—	NO	12
Dedicated Alarms (Max 300 mA per channel)	Visible	+24 VDC	13
		VIS	14
		Unused	15
	Audible 1	A1	16
	Audible 2	A2	17
	Audible 3	F	18
External Alarm Power	—	+24 VDC	19
	—	+24 VDC	20
	—	+24 VDC	21
Remote Inputs (Note 4)	Common	3.3 V	22
	Reset	R1	23
	Inhibit	R2	24
Expansion Unit Connection	CAN_High	CAN_H	25
	CAN_Low	CAN_L	26

Table 6. Main Module Connections

Note 1: +24 VDC Nominal = Controller Input (18 to 32 VDC) – 1.8 VDC (the max voltage drop in the TPPL).

Note 2: Alarm Terminals 13, 19, 20, and 21 can supply +24 VDC at ≤ 28 W combined but this 28 W can instead be used to increase the power available to field sensors if external audible and visible alarms are not connected.

I.e. the 8 sensor channels would normally have ≤ 40 W of combined available power, but this can be increased to 68.8 W if terminals 13 – 21 are unused.

Note 3: You must supply sensors with external power if more than 40 / 68 W total power is required (See Note 2).

Note 4: Maximum R_{loop} resistance for a remote reset/inhibit switch is 18 Ω , i.e. ≤ 500 m of 1 mm² shielded cable.

Electrical Power And Interfacing

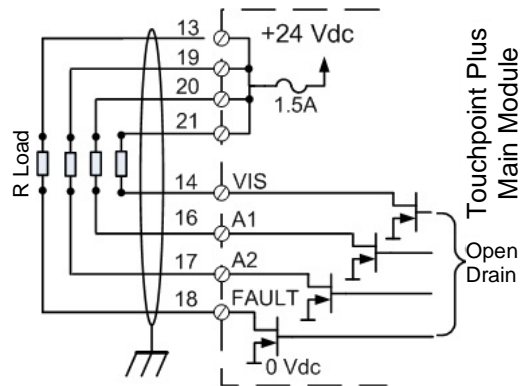


Figure 18. Dedicated Alarm Circuit Connections

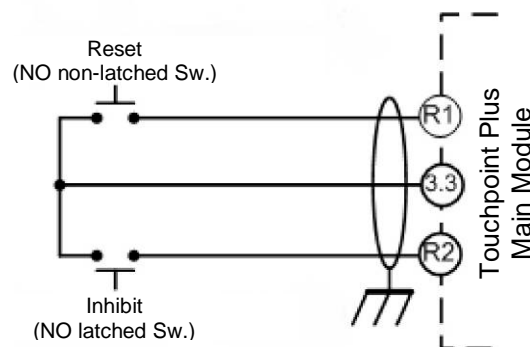


Figure 19. Optional Remote Reset and Inhibit Switch Connections

Maximum R_{loop} resistance for a remote reset/inhibit switch is 18Ω , i.e. ≤ 500 m of 1 mm^2 shielded cable.



Warning

It is the user's responsibility to ensure that Remote Reset / Inhibit switches are guarded against unauthorised access or tampering.

Electrical Power And Interfacing

5.2.6 mA Input Module Connections

Note: mA input channels are limited to 15 W per channel to a combined total of 40 W (68 W if Main Module Terminals 13 to 21 are not used). Sensors requiring more than 15 W (i.e. IR-F9 (Max 28W)) must have their own power supplies.

mA Input Channel	Field device	Label	Terminal
1	+24 VDC	+DC	1
	0 VDC	–DC	2
	4 – 20 mA signal	Sig	3
2	+24 VDC	+DC	4
	0 VDC	–DC	5
	4 – 20 mA signal	Sig	6
3	+24 VDC	+DC	7
	0 VDC	–DC	8
	4 – 20 mA signal	Sig	9
4	+24 VDC	+DC	10
	0 VDC	–DC	11
	4 – 20 mA signal	Sig	12
5	+24 VDC	+DC	13
	0 VDC	–DC	14
	4 – 20 mA signal	Sig	15
6	+24 VDC	+DC	16
	0 VDC	–DC	17
	4 – 20 mA signal	Sig	18
7	+24 VDC	+DC	19
	0 VDC	–DC	20
	4 – 20 mA signal	Sig	21
8	+24 VDC	+DC	22
	0 VDC	–DC	23
	4 – 20 mA signal	Sig	24

Table 7. mA Input Module Connections

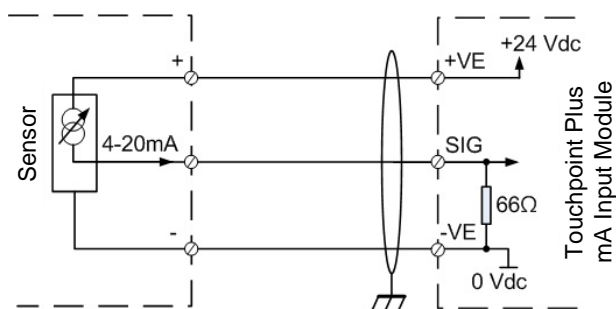


Figure 20. Three Wire Device Powered by a mA Input Module

Electrical Power And Interfacing

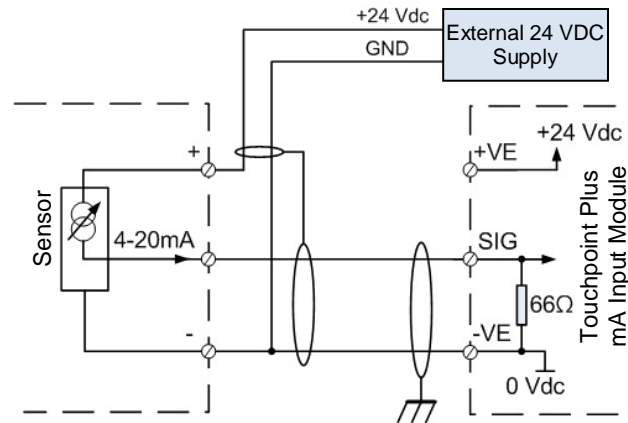


Figure 21. Three Wire Device Powered by an External Source

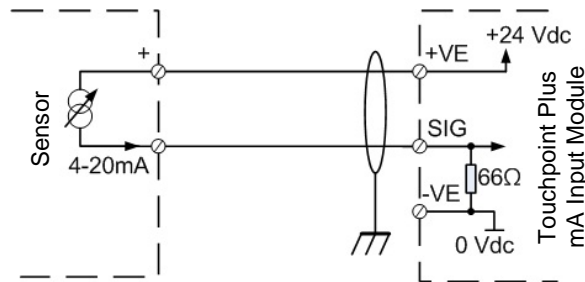


Figure 22. Two Wire Device Powered by a mA Input Module

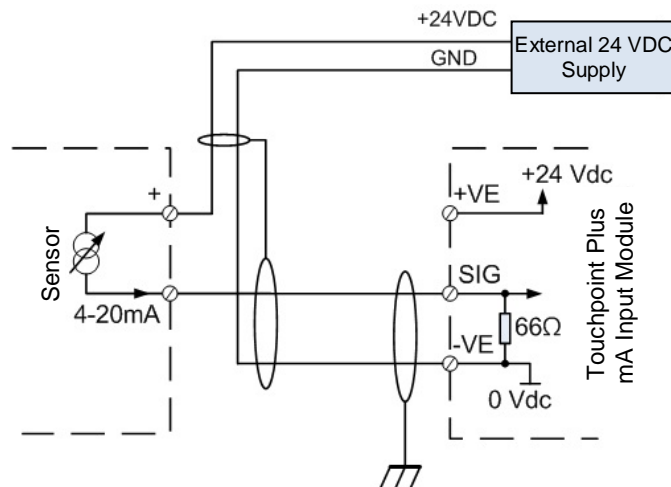


Figure 23. Two Wire Device Powered by an External Source

Electrical Power And Interfacing

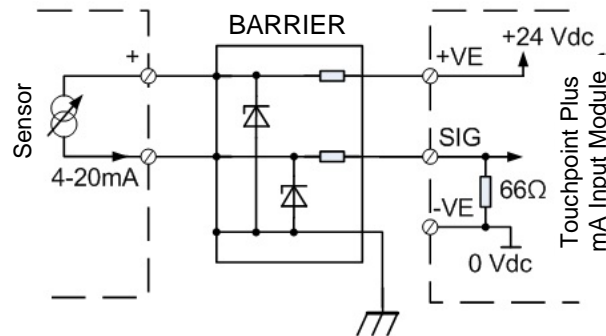


Figure 24. Two Wire Device Barrier Device Powered by a mA Input Module

Note: For intrinsically safe (I.S.) field devices, please refer to the device manufacturer's instructions for details of suitably approved I.S. barriers and interconnections.



Figure 25. Grounding for Screened Cable with Armor and with Metal Junction Box and Sensor



Figure 26. Grounding for Screened Cable, No Armor, with Metal Junction Box and Sensor

Electrical Power And Interfacing

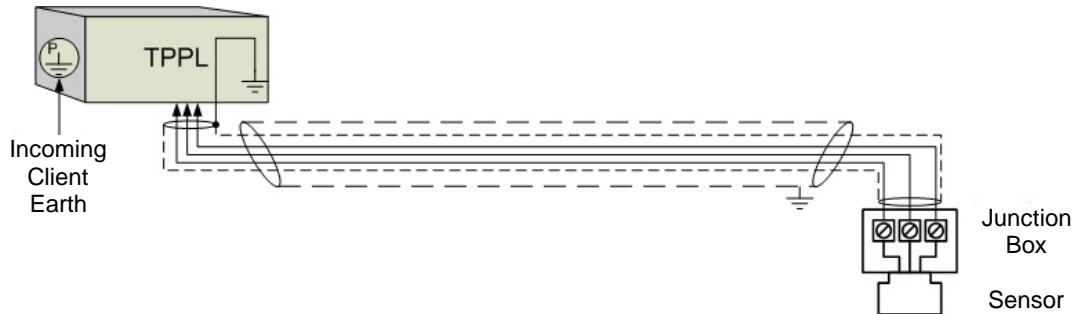


Figure 27. Grounding for Screened and Armored Cable with Plastic Junction Box and Sensor

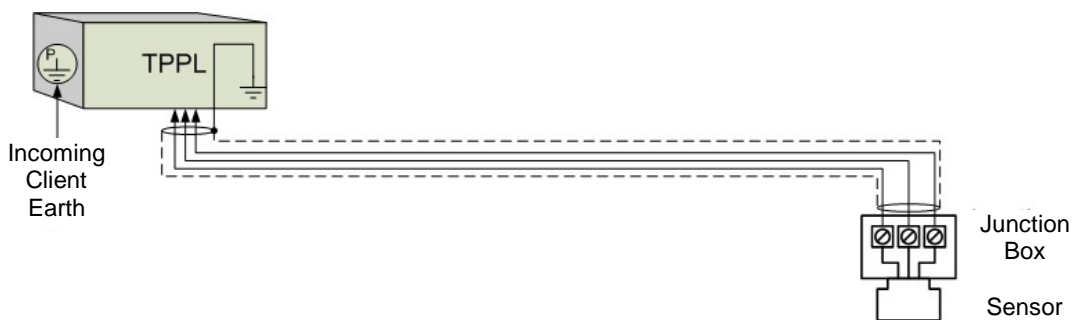


Figure 28. Grounding for Screened Cable with Plastic Junction Box and Sensor

Electrical Power And Interfacing

5.2.7 mV Input Module Connections

mV Input Channel	Field device	Label	Terminal Identification
1	Sensitive (+)	S	1
	Signal	01	2
	Sensitive (–)	NS	3
2	Sensitive (+)	S	4
	Signal	01	5
	Sensitive (–)	NS	6
3	Sensitive (+)	S	7
	Signal	01	8
	Sensitive (–)	NS	9
4	Sensitive (+)	S	10
	Signal	01	11
	Sensitive (–)	NS	12
5	Sensitive (+)	S	13
	Signal	01	14
	Sensitive (–)	NS	15
6	Sensitive (+)	S	16
	Signal	01	17
	Sensitive (–)	NS	18
7	Sensitive (+)	S	19
	Signal	01	20
	Sensitive (–)	NS	21
8	Sensitive (+)	S	22
	Signal	01	23
	Sensitive (–)	NS	24

Table 8. mV Input Module Connections

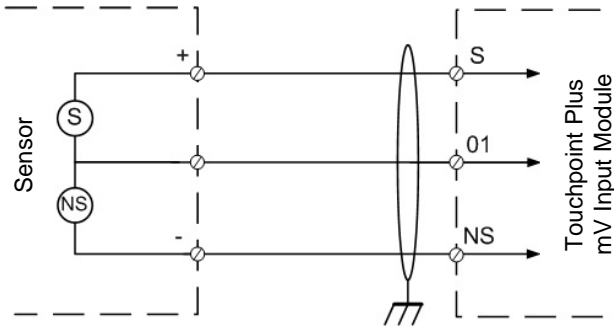


Figure 29. Catalytic Detector Connections

Electrical Power And Interfacing

5.2.8 mA Output Module Connections (each)

mA Output Channel	Label	Terminal Identification
1	I+	1
	I-	2
2	I+	3
	I-	4
3	I+	5
	I-	6
4	I+	7
	I-	8

Table 9. mA Output Module Connections

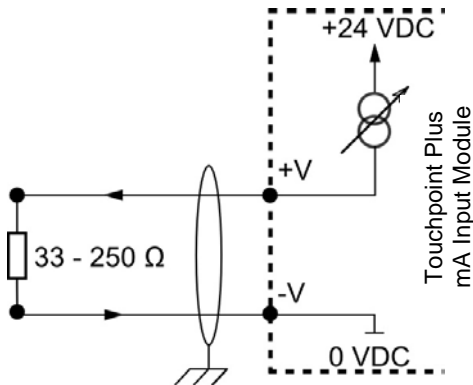


Figure 30. mA Output Module Connections

Electrical Power And Interfacing

5.2.9 Relay Output Module Connections

Relay Outputs	Label	Terminal Identification
RLY 1	NC	1
	COM	2
	NO	3
RLY 2	NC	4
	COM	5
	NO	6
RLY 3	NC	7
	COM	8
	NO	9
RLY 4	NC	10
	COM	11
	NO	12
RLY 5	NC	13
	COM	14
	NO	15
RLY 6	NC	16
	COM	17
	NO	18
RLY 7	NC	19
	COM	20
	NO	21
RLY 8	NC	22
	COM	23
	NO	24
RLY 9	NC	25
	COM	26
	NO	27
RLY 10	NC	28
	COM	29
	NO	30
RLY 11	NC	31
	COM	32
	NO	33
RLY 12	NC	34
	COM	35
	NO	36

Table 10. Relay Output Module Connections

Electrical Power And Interfacing

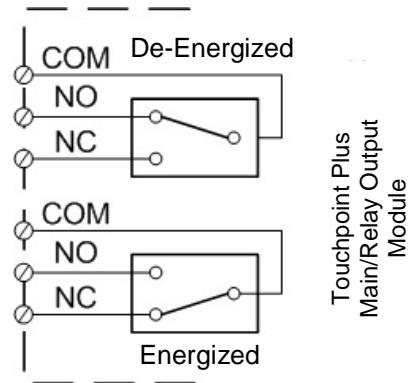


Figure 31. Relay States

Operating Instructions

Chapter 6 – Touchpoint Plus Operating Instructions

6.1 User Interface General



Figure 32. Touchpoint Plus Controller User Interface

The User Interface panel (shown above) has:

- A color touchscreen for normal system operation, maintenance and configuration
- Power, Alarm / Fault and Inhibit state LEDs
- Active Channel (01 to 08) status indicators (Ch. 07 is not commissioned in this example)
- Accept (Silence) and Reset membrane button (Right side)
- Integral Alarm Buzzer (Left side)

Further System Interfaces consist of:

- Remote inhibit and remote reset terminals on the Main module
- One fixed relay and two configurable relays on Main Module for system Failure, Alarm and Inhibit
- Three dedicated alarm outputs for visual and audio alarms
- An optional SD Card

The interface software has two distinct modes of operation – Configuration Mode and Visualization Mode, and access to certain functions is restricted by the use of password protected access levels. There are four hierarchical access levels: View mode is available to all users while Operator, Engineer and Administrator modes are password protected. Password holders can be assigned one access level only.



Caution

Direct sunlight, solvents, abrasives and sharp edged or metal tools may cause irreparable damage to the LCD panel and membrane.

Use only damp cloths or computer screen wipes to clean it.

Operating Instructions

6.2 Menu Items and Access Levels

The table below details the menu items and access levels for the User Interface. The password hierarchy is Administrator, then Engineer, then Operator. Broadly speaking, the Administrator can commission modules and configure channels, the Engineer can edit channel configuration and do calibration, and the Operator can interact with the system during normal day-to-day operation such as acknowledging and resetting events.

A user can log in by selecting an access level and then inputting a password that is valid for that access level.

Note: LCD backlight timeout : 30 seconds, Menu timeout: 90 seconds, Authentication timeout: 15 minutes.

There are two kinds of timeout in menu mode. One is “menu timeout” and the other is “authentication time out”.

With “menu timeout”, the display will change to a higher menu and then back to the Channel Status screen if there is no touch input for a pre-set time. The default menu timeout is 90 seconds, but this can be changed using menu options Configuration>General>Timeout.

With “authentication timeout” the purpose is to cancel the login automatically when there is no activity for the configured duration. If the user is logged out automatically they will be asked to log in again.






























































Items with a clock symbol timeout after 15 minutes of inactivity.

Key: ● = Allowed, ○ = Denied, ⌚ = Fixed timeout.

↳ = sub-menu, ↳↳ = sub-sub-menu

Menu Item	Admin	Engineer	Operator	Others
Login ⌚	●	●	●	○
Menu Home	●	●	●	●
Information	●	●	●	●
↳ System Info	●	●	●	●
↳↳ Summary Info	●	●	●	●
↳↳ Software Info	●	●	●	●
↳↳ Parameter Info	●	●	●	●
↳ Event History	●	●	●	●
↳↳ Filter View	●	●	●	●
↳↳ Export History	●	●	●	●
↳ Trend/Plot	●	●	●	●
↳ Channel Info	●	●	●	●
↳ Board Info	●	●	●	●
↳ Relay Status	●	●	●	●
↳ Additional Status	●	●	●	●
↳ Service Contract	●	●	●	●
Event History	●	●	●	●
Channel View Home	●	●	●	●
↳ List View	●	●	●	●
↳ Tile View	●	●	●	●
↳ Summary View	●	●	●	●
↳ Output View	●	●	●	●
Configuration	●	●	○	○

Operating Instructions

Menu Item	Admin	Engineer	Operator	Others
 Channel Settings	●	●	○	○
  mA Input Channel	●	●	○	○
  mV Input Channel	●	●	○	○
  mA Output Channel	●	●	○	○
  Relay Channel	●	●	○	○
 Module Control Panel	●	●	○	○
 General	●	●	○	○
  Date / Time	●	●	○	○
  Language	●	●	○	○
  Service Contract	●	●	○	○
  Home Settings	●	●	○	○
  Timeout Setting	●	●	○	○
 Log Interval and Threshold	●	●	○	○
 Display Screen	●	●	○	○
 Outputs	●	●	○	○
  Dedicated Alarm Contacts	●	●	○	○
  Buzzer Options	●	●	○	○
 Security	●	●	○	○
  Password	●	●	○	○
  Remote Access (Buttons)	●	●	○	○
 Config Manager	●	●	○	○
  Import	●	●	○	○
  Export	●	●	○	○
Maintenance	●	●	●	○
 Reset Alarms / Faults	●	●	●	○
 Reset All Peaks	●	●	●	○
 Gas Calibration ⚠	●	●	○	○
 Adjust mV Baseline ⚠	●	●	○	○
 Service Mode ⚠	●	○	○	○
  Electronic Adjustment ⚠	●	○	○	○
  Safety Function ⚠	●	○	○	○
  Reset to Defaults ⚠	●	○	○	○
 Update System ⚠	●	○	○	○
  Software ⚠	●	○	○	○
  Language ⚠	●	○	○	○
  Sensor Catalogue ⚠	●	○	○	○
  Module Data ⚠	●	○	○	○
 SD Card	●	●	○	○
  Eject	●	●	○	○

Operating Instructions







Menu Item	Admin	Engineer	Operator	Others
 Format	●	●	○	○
 Power Off ☹	●	●	○	○
System Test	●	●	○	○
 Force Relay ☹	●	●	○	○
 Force 4–20 mA ☹	●	●	○	○
 Relay C & E Matrix ☹	●	●	○	○
 Dedicated Alarm Contacts ☹	●	●	○	○

Table 11. User Matrix

6.3 Touchscreen (Color Resistive)

The touchscreen is activated using a finger or a stylus (only). Do not use sharp or abrasive objects as they may cause irreparable damage.

All interactions are single tap.

6.4 SD Card

The SD card is used to store the system event history. Touchpoint Plus logs all events and all changes to input readings. A notification will be given when the SD card has less than 50 Mb of space remaining. If the card is not replaced with an empty one, or if space is not freed up, a further notification will be given when it is full and data is being overwritten.

The Touchpoint Plus accepts standard SD cards of 2 to 32 GB (FAT32). SD cards can be reformatted by inserting the card into the SD card slot and using **TPPL. Menu>Maintenance>SD Card>Format**.

Note: The SD Cards must be unlocked. They must be formatted by TPPL, and they should be used for TPPL data only. Stored data can be transferred or copied to a PC via a Card Reader and the card reused, but care must be taken not to overwrite previously transferred data files, and a reliable backup system should be used to avoid data loss.

Caution: Formatting the SD card will erase all existing data.

Note: The SD Card must remain inserted during normal system operation as the on-board flash memory is limited to a few minutes of events. When the card is full it should be replaced or space freed up to avoid data loss.

Operating Instructions

6.5 Normal Operation (Safety Functions)

During normal operation:

- The Touchpoint Plus system will collect sensor data every 250 ms from its Input / Output modules
- The Cause and Effect matrix will be evaluated every 250 ms, and commands sent accordingly to the appropriate output channels. System response time is ≤ 1 s
- Any change in status of an I/O channel will be reported to the User Interface and logged in the event history
- Events (Alarms, Faults, Inhibits, etc.) will be reported to the User Interface and logged in the event history
- Any fault within the system will activate the System Fault relay
- Any failure of the safety function i.e. due to major fault or power loss will activate the System Failure relay

6.6 Overview – Touchscreen Interface

See *Ch.12 Glossary of Icons* for details about individual icons.

6.6.1 User Interface Screen

The User Interface shows the current status of the Touchpoint Plus system as follows:

- Channel List – Display shows up to six inputs and events with automatic scrolling
- Channel Summary – Display shows total counts for alarm 1, alarm 2, alarm 3, fault, warning and inhibits
- Channel Tile – Display shows up to eight inputs and events
- Channel Output – Display shows up to eight output s and events

Key to examples below:

- Channel marking in red – one or more input channels are in **Alarm**
- Channel marking in yellow – one or more channels are in **Fault**
- Channel marking in orange – one or more channels are in **Inhibit**
- Channel marking in blue – one or more channels are in **Warning**

Tip: You can use the color-matched filter icons to list a series of specific event types.

<div> 10:42:02 29/12/2014 Channel List </div>					<div> 16:20:35 28/01/2015 Channel List </div>				
001	XCD EC	Oxygen - O2	22.3	%VOL	003	XCD EC	Carbon Monoxide	11	ppm
008	XNX EC	Ammonia - NH3	2	ppm	006	705 Flam Detector	Methane - CH4	0	%LEL
005	XNX EC	Carbon Monoxide	1	ppm	008	705 Flam Detector	Acetone	20	%LEL
					001	(Detector)	O2	3.3	%
					004	(Detector)	O2	4.7	%
					005	Signalpoint Flam.	Isobutane	2	%LEL
<div> </div>					<div> </div>				
<div> 16:21:08 28/01/2015 Channel Tile </div>					<div> 16:21:30 28/01/2015 Channel Summary </div>				
003	Carbon Monoxide	12	ppm		006	Methane - CH4	0	%LEL	
008	Acetone	20	%LEL		001	O2	3.7	%	
002	O2	4.8	%		004	O2	4.9	%	
005	Isobutane	2	%LEL		007	Methane - CH4	2	%LEL	
<div> </div>					<div> </div>				
					<div> <div>Alarm 1</div> <div>1</div> </div>				
					<div> <div>Alarm 2</div> <div>0</div> </div>				
					<div> <div>Alarm 3</div> <div>0</div> </div>				
					<div> <div>Fault</div> <div>1</div> </div>				
					<div> <div>Warning</div> <div>1</div> </div>				
					<div> <div>Inhibit</div> <div>1</div> </div>				

Operating Instructions

6.6.2 Navigation – Inputs and Outputs Screens

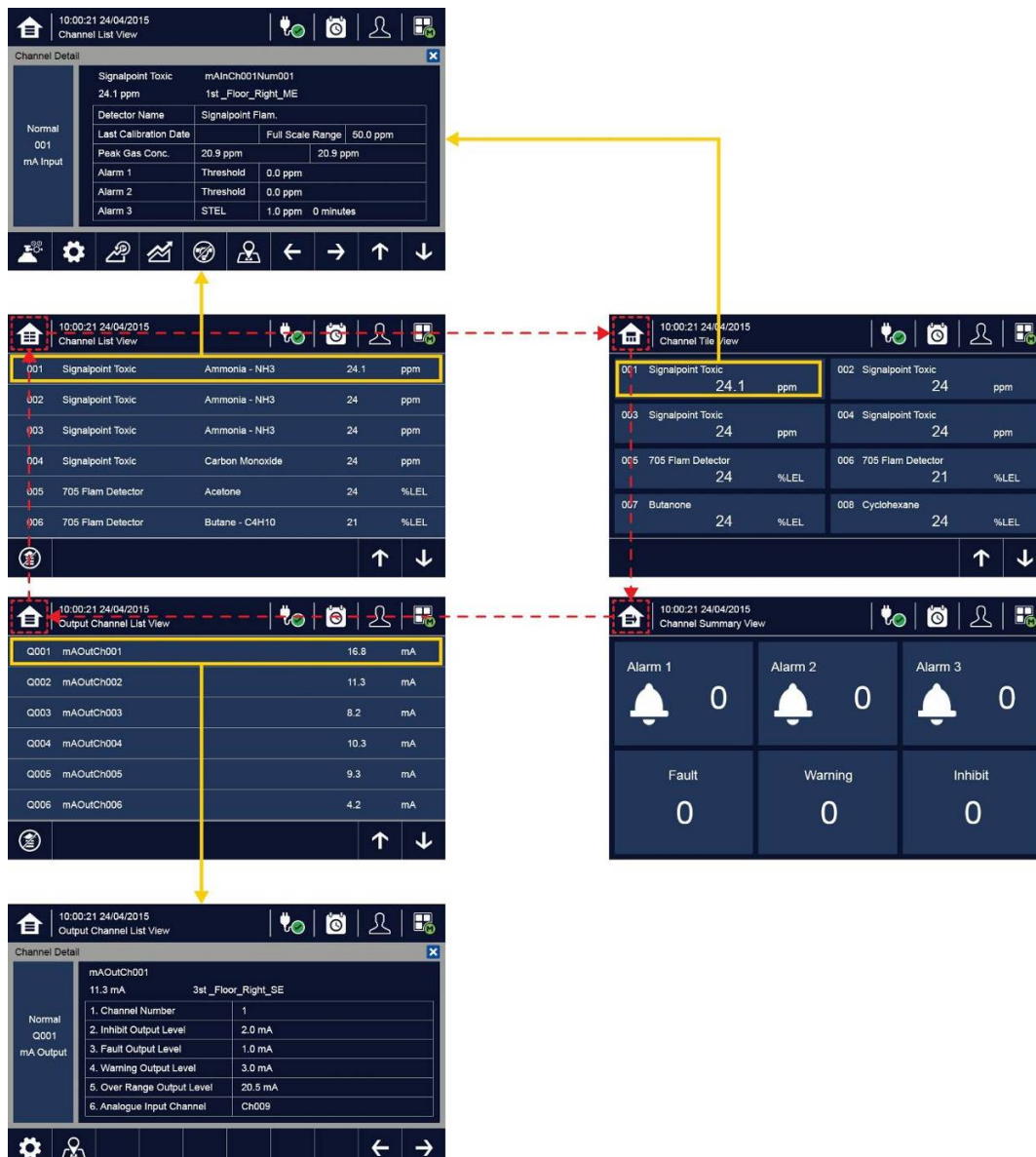
The icons in the navigation toolbar are used to toggle through the User Interface options, as shown in the table below.

Channel Input screen:

	List View
	Tile View
	Summary View
	Output View

Channel detail screen.

If you touch an individual channel in the inputs and outputs screen, the Channel detail screen will be displayed as shown below:



Operating Instructions

6.6.3 Navigation – Active Events and Filtering

You can change the list type by using Filters from one of the Tile views:



Key to Filters:

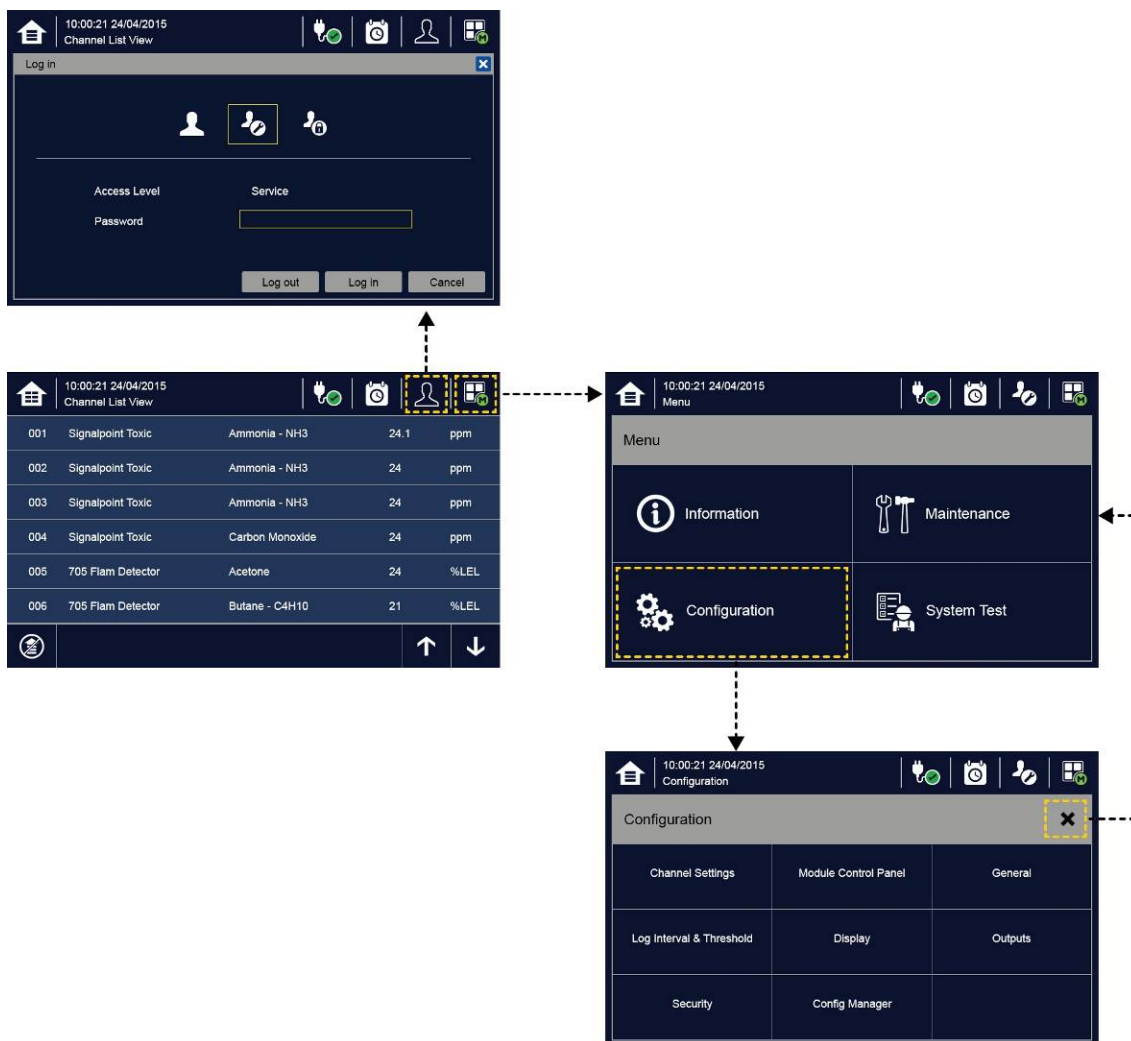


- Red: Alarm
- Yellow: Fault
- Orange: Inhibit
- Blue: Warning

Operating Instructions

6.6.4 Navigation – Menu

User must have the appropriate access level password to enter Maintenance, Configuration and System test options.







Note: The system will log out after a set period of inactivity. (The default authentication timeout is 15 minutes, but this can be changed in system settings.)

Operating Instructions

6.6.5 Navigation – Active Access Level Icons

You must enter a valid password to login.

	No one is logged in
	Operator is logged in
	Service engineer is logged in
	Administrator is logged in

Note: The system will log out after a set period of inactivity. (The default authentication timeout is 15 minutes, but this can be changed in system settings.)

6.7 Alarms

6.7.1 View active alarms

Active alarms can be viewed:

- 1) From the Input screen, select the red filter icon:



001	XCD CAT	Flammable	0	%LEL
005	XCD EC	Oxygen - O2	21.3	%VOL
008	XNX EC	Ammonia - NH3	0	ppm

The screen will display a list of the input channels with active Alarms, starting with the most recent event.

Unacknowledged alarms will flash, acknowledged ones will stay on. Touch the Accept button to acknowledge the alarms.

Note: the display will show the channel ID location tag. If more than one alarm level has been triggered on the same channel, a high priority alarm level will be shown.

6.7.2 Acknowledge an active alarm

Note: Operator or higher level access is required.

Note: Accept and Acknowledge have the same meaning in this context.

An active Alarm can be acknowledged by logging in and touching the **Accept** button for >1 second. This will acknowledge ALL active events and the channel LED and icon will stop flashing.

Operating Instructions

When an alarm is acknowledged the buzzer will be silenced and the alarm will stop flashing.

Note: If a Relay Output channel has the Alarm Update function enabled, the alarm will be ignored for the Cause and Effect matrix once it is acknowledged.

6.7.3 Reset a latched alarm

A latched alarm is one that cannot automatically reset itself when the triggering event has cleared.

Note: Operator or higher access level is required (optional, see *Commissioning, Buzzer Activation and Button Password Protection*).

A latched alarm can be reset in three ways:

- 1) By logging in and touching the **Reset** button for >3 seconds. This will reset ALL latched alarms, faults and warnings, provided that the triggering event has cleared. It will also reset any latched relay outputs.
- 2) By logging in and selecting Menu>Maintenance>Reset alarms/Faults. This will reset all latched events for the channel, provided that the input signal has returned to Normal status.
- 3) By holding the Remote reset switch for >3 seconds. TPPL has the option of adding a remote acknowledge / reset switch up to 500 m away from the Controller. The remote reset switch does not require a login so a lockable switch should be used to prevent unauthorized access.



Warning

A gas detector may indicate that the gas concentration in its vicinity has dropped to a safe level, but this does not mean that a dangerous atmosphere doesn't persist elsewhere in that area. Do not reset the alarms until the area has been confirmed to be safe or has been adequately ventilated.

6.8 Faults and Warnings

6.8.1 View Faults and Warnings

Detailed information about active Faults and Warnings can be viewed:

- 1) From the Input and output screen, select either the Fault (yellow filter) icon, or the Warning (blue filter) icon. The screen will show a filtered list of only the active Faults or Warnings.

		14:05:02 15/12/2014 Channel List									
005	XCD EC	Oxygen - O2	-73.1	%VOL							
001	XCD CAT	Flammable	-93	%LEL							
008	XNX EC	Ammonia - NH3	-93	ppm							

Operating Instructions

6.8.2 Acknowledging an Active Fault or Warning

Note: Operator or higher level access is required.

Note: Accept and Acknowledge have the same meaning in this context.

An active fault or warning can be acknowledged by logging in and touching the **Accept** button for >1 second. This will acknowledge ALL active events and the channel LED and icon will stop flashing.

6.8.3 Reset a Latched Fault or Warning

Note: Operator or higher access level is required.


A latched fault or warning can be reset in three ways:

- 1) By logging in and touching the Reset button for >3 seconds. This will reset ALL latched alarms, faults and warnings, provided that the event has cleared. It will also reset any latched relay outputs.
- 2) By logging in and selecting Menu>Maintenance>Reset alarms/faults. This will reset all latched events for the channel, provided that the input signal has returned to Normal / within tolerance.
- 3) By holding the Remote reset switch for >3 seconds. TPPL has the option of adding a remote acknowledge / reset switch up to 500 m away from the Controller. The remote reset switch does not require a login so a lockable switch should be used to prevent unauthorized access.

6.9 Inhibit

Note: Engineer or higher access level is required.

Input channels can be inhibited by logging in and by:

- 1) Selecting a channel and then touching the inhibit icon: 
- 2) Using a Remote Inhibit input (locking switch).

To clear inhibits: log in, select the required channel and then select **Clear Inhibit**.

Note: An auto-inhibit cannot be cleared manually. Auto-inhibits may occur during calibration or warm-up, when a transmitter is signaling Inhibit, or when an Inhibit delay time is running.

Note: Inhibit timeouts can be set by configuring the channel, as shown below:



The screenshot shows the 'Channel Detail' screen for a 'Flammable' channel. The channel name is 'mAICh002Num001' and the location is '1st_Floor_Right_ME'. The gas type is 'XCD CAT'. The screen displays various configuration parameters and thresholds.

Channel Information	
Flammable	mAICh002Num001
-80 %LEL	1st_Floor_Right_ME

Detector Information	
Detector Name	XCD CAT
Last Calibration Date	Full Range 100 %LEL
Peak Gas Conc	-100 %LEL 100 %LEL

Alarm Thresholds	
Alarm 1	Threshold 20 %LEL
Alarm 2	Threshold 40 %LEL
Alarm 3	Threshold 60 %LEL

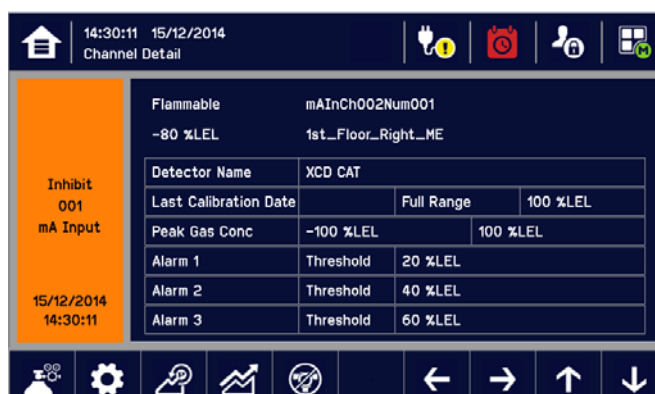
On the left side of the screen, there is a status panel for 'Inhibit 001 mA Input' showing the date '15/12/2014' and time '14:30:11'.

Operating Instructions

6.10 Viewing Input Channels and Input Details

From the Input screen, toggle the Home icon  between Channel Tile>Channel Summary>Channel Output.

- 1) From the Input screen, select Channel List or Channel Tile.
- 2) A list of all input channels is shown in order of channel ID. The channel ID, gas name, status, min/max peak gas concentration and current reading will be shown.
- 3) The list can be filtered by status – Alarm, Fault, Inhibit, Warning or All.
- 4) Select a channel and the Channel detail screen will appear. Depending on access level, a number of options will be shown:



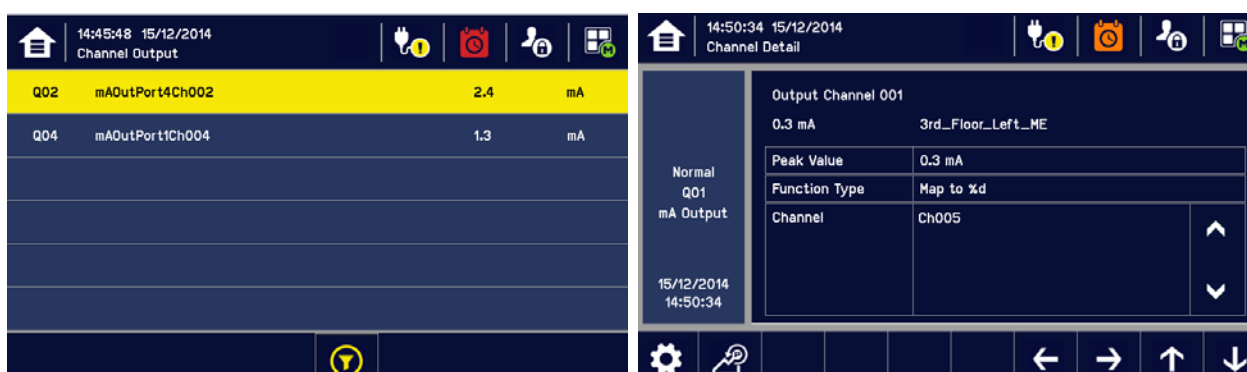
Function	Access Level	Comment
Calibration	Engineer	Option to calibrate the channel.
Channel configuration	Engineer	Change the input channel configurations.
Peak reset	Engineer	Reset peak reading of the channel.
Inhibit	Engineer	Inhibits the channel. On an inhibited channel, this option is Clear Inhibit. See <i>Normal Operation, Inhibit</i> for more information.
Channel location	Viewer	Shows the physical position of the I/O Module and channel.
Trend Graph	Viewer	Shows the trend graph for the channel. See <i>Normal Operation, View Trend Graph</i> for more information.
Input Details	Viewer	Shows detailed information about the channel including Custom ID, sensor and gas name, gas reading, configured alarms and alarm levels.

Operating Instructions

6.11 Viewing Output Channels

From the Input screen, toggle the Home icon  between Channel Tile>Channel Summary>Channel Output.

- 1) From the Input screen, select Channel List or Channel Tile.
- 2) A list of all output channels is shown in order of channel ID. The channel ID, location tag and status are shown.
- 3) The list can be filtered by status – Fault, Inhibit, Warning or All.
- 4) Select a channel and the Channel detail screen will appear. Depending on access level, a number of options will be shown:



Function	Access Level	Comment
Linked input Channel Nr.	Viewer	Display an input channel number that is mapped to the output channel
Channel configuration	Engineer	Change the output channel configurations: Inhibit, Fault, Warning, and Over-range output level

6.12 Viewing the Trend Graph

The Trend graph is drawn using one minute average readings so it is not suited to viewing short-term signal fluctuations.

To view the graph:

- 1) Select the Menu>Information>Trend/Plot.
- 2) Select the required channel, and then select Data range.
- 3) The trend graph will be displayed.

Note: Touchpoint Plus trend graph will retain the latest 8 hours of data but will be cleared after a power reset.

Note: Touchpoint Plus does not adjust automatically for daylight savings time so Touchpoint Plus will retain a backup of the earlier data if the clock is backdated (i.e. when ending daylight savings time).

Operating Instructions

6.13 To View Event History and Export

The event history for the complete system can be viewed in date order (latest first). The history can be filtered by Alarm, Fault, Inhibit, or Warning.

To view the event history: select Menu>Information>Event History, press the Event icon.

Note: Touchpoint Plus does not adjust automatically for daylight savings time so Touchpoint Plus will retain a backup of the earlier data if the clock is backdated (i.e. when ending daylight savings time).

Active event data is saved to the SD card automatically if one is installed. The event history data can also be exported to the SD card on demand.

To export the event history: select Menu>Information>Event History>Export Event.

Note: Make sure an SD card with sufficient empty space is installed before Exporting. See *Checking the Capacity of the SD Card* below for more information.

Note: Microsoft Excel 2003 is limited to a maximum of 65,526 entries. If the report is larger than this a “file not loaded completely” message may be generated. Microsoft Excel 2010 has a much larger capacity that should be sufficient for all Touchpoint Plus generated reports.

Note: Touchpoint Plus does not adjust automatically for daylight savings time so Touchpoint Plus will retain a backup of the earlier data if the clock is backdated (i.e. when ending daylight savings time).

6.14 Checking the Capacity of the SD Card

Select Menu>Information>Additional Status. This will show the size and remaining space on the inserted SD Card. Please see the *Maintenance* chapter for details of how to replace the card.

The Touchpoint Plus accepts standard SD cards of 2 to 32 GB (FAT32).

6.15 Accessing the System Information and Service Contact Details

Select **Menu>Information>System information>About** to view details about the Firmware, Software and serial numbers.

Select **Menu>Information>Service Contact** for details of how to access technical support.

6.16 System State Relays

The Main Module has three System State relays, rated at 30 VDC, 3 A or 250 VAC, 3 A, that activate under the following conditions:

- One or both System-State relays can activate if there is any active alarm, fault, warning or inhibit in the system (if configured).
- The System-Failure relay can activate if the safety function of the system is not operating, for example due to a major fault or power loss.

Commissioning

Chapter 7 – Commissioning

7.1 Introduction

This chapter explains several tasks that may be required during commissioning.

First time switch-on and Commissioning should only be carried out by a Honeywell engineer or someone with System Administrator privileges who has been trained in accordance with this manual.

During First Time Switch On, it will be necessary to confirm or set the Date, Time and Language, to set new passwords and delete the default password, and to program passwords tasks.

If the system was ordered from Honeywell Analytics, carry out *Ch.7.5 Commission Input / Output Modules* and *Ch.7.6 Channel Configuration* for the input channels before proceeding with *Ch.7.6 Channel Configuration* for the Relay Output channels and the mA Output channel.

7.2 First Time Switch On

Before switching power on, ensure that a qualified person has checked that the wiring is safe and conforms to local regulations, and that all electrical connections are in accordance with Section 4. Also check that the battery isolator switches are “On” if a backup battery is fitted.

Switch on power. You can use a multi-meter to check that the DC supply to the DC Connector block is between 18 and 32 VDC (≥ 24 VDC when a battery is installed).

The system start up sequence may last for up to 5 minutes depending on the number of channels in use.

When start up is completed, Touchpoint Plus will display the Input screen, indicating the current status of the system. The Channel list view is shown below:



Key to Icons:

	Toggle to select screen layout		Login Status (Admin)
	External mains power is provided. Touch for status		Login Status (Engineer)
	External power is not connected. Touch for status		Login Status (Operator)
	Event History (Inhibit shown)		Menu
	Login Status (Viewer)		Filter Display (Inhibits shown)
	Toggle auto-scroll on and off		

Commissioning

7.3 Date, Time and Language Settings

Note: You should replace the CMOS battery if the time and date settings are not retained when power is switched off then on again.

Note: Please regularly check the time and date settings and adjust if required.

7.3.1 How to Set or Change Date, Time and Language Settings:

- 1) Touch the Login icon in the navigation bar and a login prompt will ask for the access level and Password.
- 2) Login with the Service engineer access level. The initial default Password for all access levels is "TPPL".
- 3) From the navigation bar select Menu>Configuration>General>Date/Time.
- 4) Set the date, time and display format as required.
- 5) Touch Finish.

Note: Touchpoint Plus does not adjust automatically for daylight savings time so Touchpoint Plus will retain a backup of the earlier data if the clock is backdated (i.e. when ending daylight savings time).

7.4 Program Passwords

Note: Administrator level access is required to create or amend an Administrator or lower levels of password access. Engineer level access can create or amend Engineer or lower levels of password access.

Note: Passwords are case sensitive.

The following rules apply to user passwords:

- Three password protected levels and one non-password level are available.
- The password must be at least 8 characters long.
- The password must contain a mix of letters, numbers and symbols.
- The password must contain upper and lower case characters.

- 1) Login with a valid engineer or administrator level.
- 2) Select Menu icon>Configuration>Security>Password.
- 3) Select an access level icon and input the currently logged in password, the new password, and confirm the new password.
- 4) Touch Change.

Note: The default passwords will be replaced with the new passwords.



Caution

For security reasons you must change the default Administrator, Engineer and Operator passwords at the earliest opportunity and regularly thereafter.

At the very least you should keep a copy of the Administrator password in a safe place as it cannot be recovered if lost or forgotten.

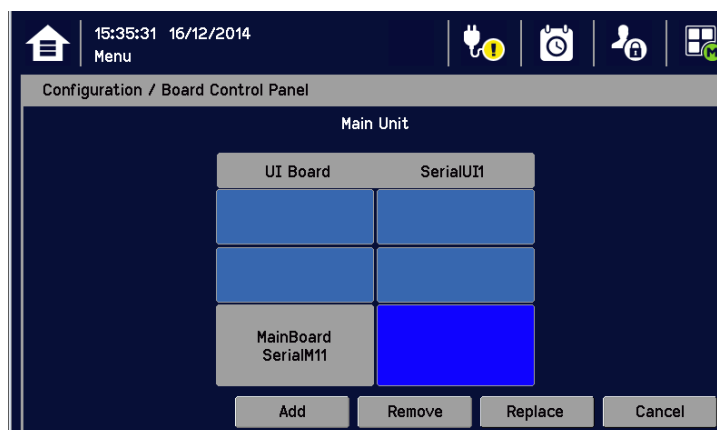
Careless password management can allow unauthorized access to the system that may cause security problems that are the user's responsibility.

Please get help from your service contact if you forget a password. The details should have been entered in the Touchpoint Plus software during commissioning. If not, please contact Honeywell Analytics Technical Support, whose details are on the back page of this handbook.

Commissioning

7.5 Commission Input / Output Modules

- 1) Login as an Engineer or Administrator.
- 2) Select Menu> Configuration>Module Control Panel.
- 3) Select an I/O module (a blue block) and touch “Add”. Select one of the listed I/O module types.
- 4) Repeat for other installed I/O modules.
- 5) To remove a module, select the Module on the screen and then touch “Remove”. To replace it, touch “Replace”.



Note: Sky blue blocks show newly installed (i.e. uncommissioned) or decommissioned modules.

7.6 Channel Configuration

Note: Administrator or Engineer level access is required. Please refer to the section on *User Interface, Access Levels* for details.

Note: There is no channel calibration reminder, and the user can disable the relevant calibration warning by setting the calibration interval to zero. (See Ch. 7.6.2 *Configuring a Channel* and Ch. 7.6.3 *Editing a Configured Channel*).

7.6.1 Introduction

Individual channels can be configured in two ways – either from the built in sensor catalogue (for Analogue Input modules only), or by completing a full custom configuration.

When using the sensor catalogue, only the Channel number and tag must be manually entered and then the rest of the configuration is populated automatically when a detector name and type are selected from the pre-defined list.

Note: You can always use the sensor catalogue as a starting point and then amend it afterwards (see “Ch.7.6.3 *Editing a Configured Channel*” and “Ch. 14 *Configurable Parameter Reference Guide*”).

To change any parameter, enter the new value and touch Apply to update the system. The system will then return the value, which will be displayed on the screen, and the user must touch Update for the settings to take effect. This requires the user to verify that the correct value has reached the system.

Commissioning

New values can be entered in various ways:

- Free text (i.e. channel tag)
- Numeric keypad
- Check / uncheck a box (i.e. to toggle an alarm between latching and non-latching)
- Select an option by checking a radio button
- Select from a list of available options (i.e. channel number)

The configuration is designed to be simple to follow on the screen. However you can refer to *Ch. 13 Configurable Parameter Reference Guide* to find detailed definitions of all the parameters, default settings and available ranges.

7.6.2 Configuring a Channel (mA input and mV input channel)

Select the required configuration method, and follow the on-screen instructions. Refer to *Ch. 15 Configurable Parameter Reference Guide* for detailed information.

Note: You will need to have the required configuration information available before starting this procedure or you risk the system timing you out and decommissioning the uncompleted channel and losing all your unsaved changes.

To configure an individual channel:

- 1) Login as an Administrator or Engineer.
- 2) Select Menu>Configuration>Channel settings.
- 3) Select the required Module type.
- 4) Select a required channel and touch "Select".
- 5) Select "Enable" for a required channel.
- 6) Select "Channel Number" and "Enter Channel Tag".
- 7) Select a detector name and a sensor type to import all relevant configuration parameters from the Sensor Catalog.
- 8) Edit the channel parameters.
- 9) Touch "Finish" if modification of channel settings is complete.
- 10) Check whether the channel settings are valid before making it take effect.
- 11) Touch "Apply".



Caution – Alarm Inhibit

An I/O Module will be set into Configuration State if configuration update is attempted for any of its channels (i.e. Commission Channel or Edit Configuration).

Configuration State means that all commissioned channels on the I/O Module are set into Inhibit state – i.e. the input channels **will not trigger any alarms** and output channels **will not execute any actions**.

You should consider alternative safety measures when performing these procedures.

Commissioning

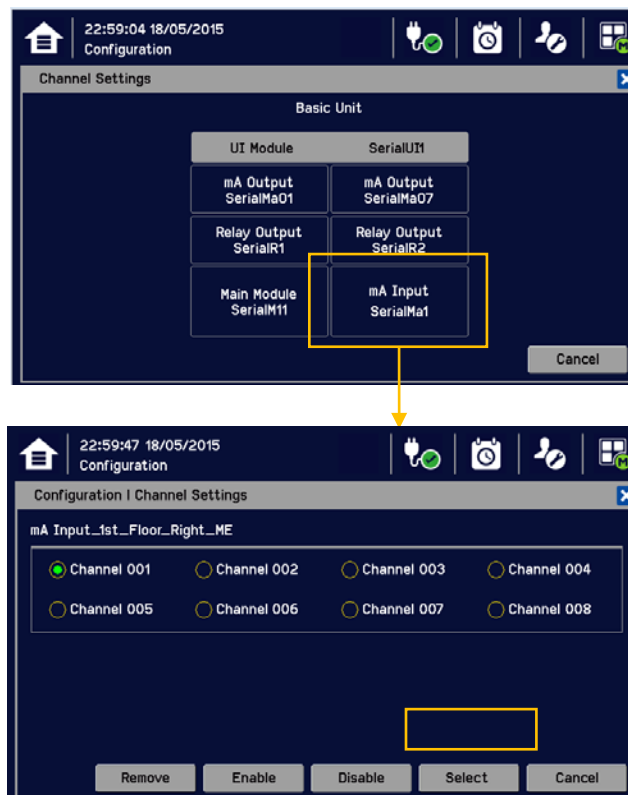
7.6.3 Editing a Configured Channel

Note: There is a 15 minute “no-input” timeout limit, after which you will be logged out and any unsaved changes will be lost. It may also be necessary to return to the System Setup screen and set the module to normal state.

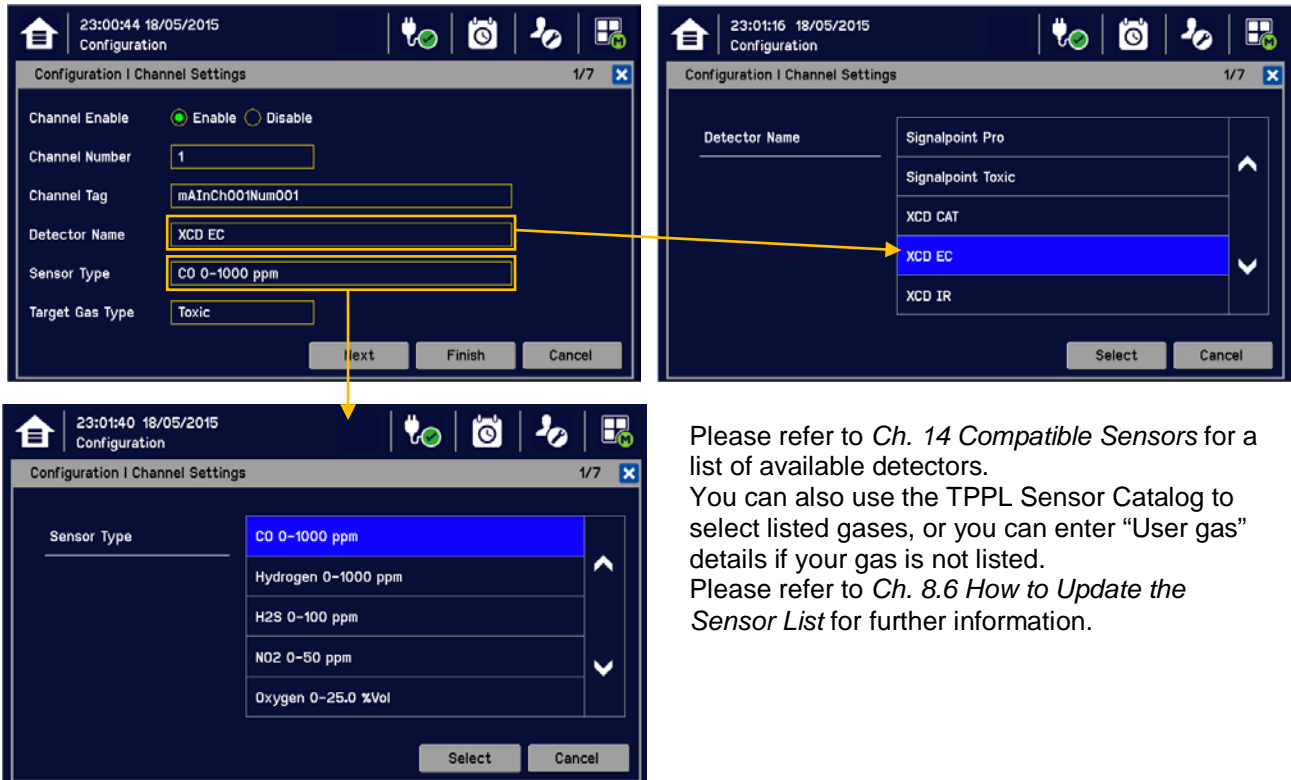
To edit an already configured channel:

- 1) Login as an Administrator or Engineer.
- 2) Select the Menu>Configuration>Channel settings and then select an I/O module.
- 3) Select the required channel.
- 4) Select the screen that you want to edit (refer to previous sections of this manual).
- 5) Enter the required values in the field New Value and touch “Finish”.
- 6) Review all parameters are valid and touch “Apply”.
- 7) The system will return the new value; touch “Update” to confirm.

7.6.4 Editing mA Input Channel Settings (In Pictures)

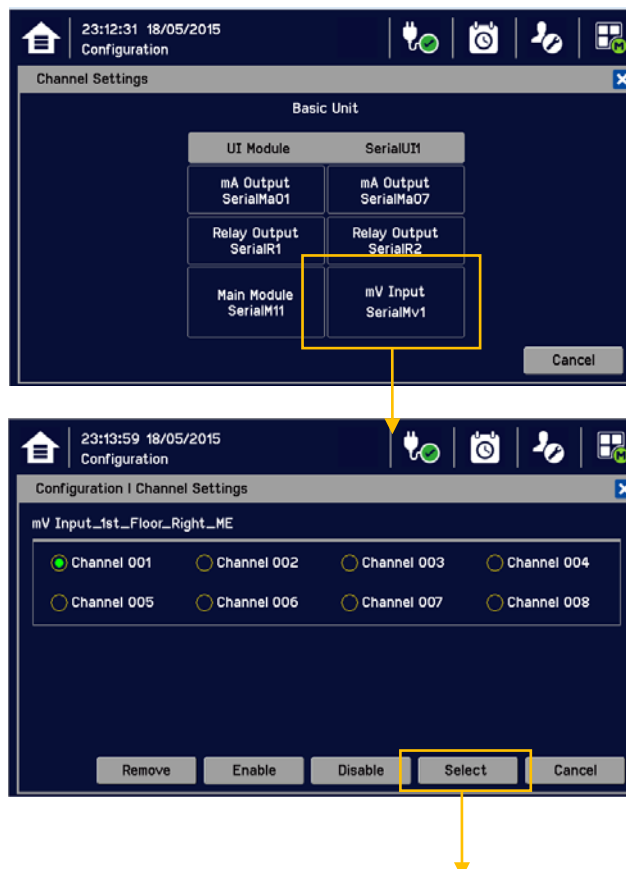


Commissioning

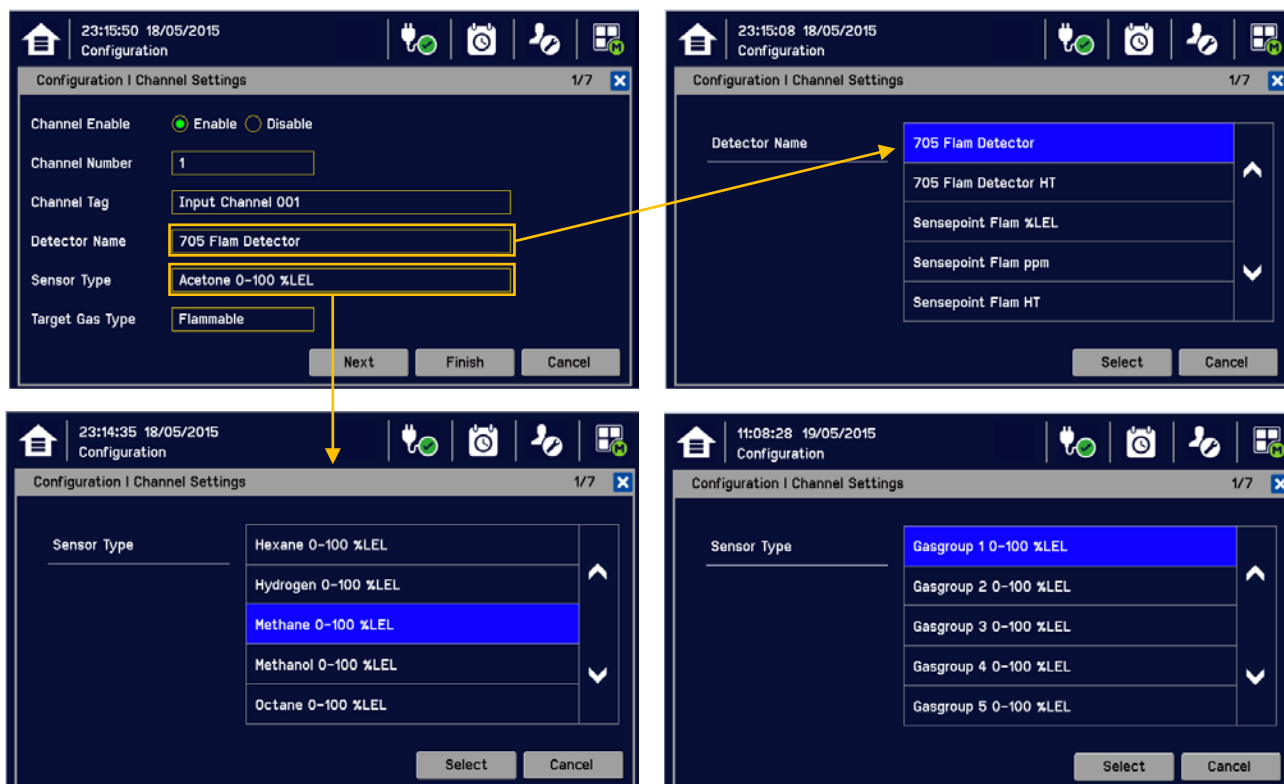


Please refer to *Ch. 14 Compatible Sensors* for a list of available detectors. You can also use the TPPL Sensor Catalog to select listed gases, or you can enter "User gas" details if your gas is not listed. Please refer to *Ch. 8.6 How to Update the Sensor List* for further information.

7.6.5 Editing mV Input Channel Settings (In Pictures)



Commissioning



Please refer to *Ch. 14 Compatible Sensors* for a list of available detectors.

You can also use the TPPL Sensor Catalog to select listed gases, or you can enter Gas groups 1 to 8 if your gas is not listed.

Please refer to *Ch. 8.6 How to Update the Sensor List* for further information.

Note: The gas selections available will vary with different types of sensors. Gases listed with a “-2” suffix are compliant with 60079-20-1 LEL levels.

Note: Sensors must be recalibrated when selecting a new target gas.

Note: mV-bridge sensors are not suitable for use in oxygen enriched atmospheres (i.e. >21 %v/v). Oxygen deficient atmospheres (i.e. <10 %v/v) may suppress sensor output.

7.6.6 Editing Relay Output Channel Settings

Prior to starting you should have completed configuring or editing all of the required input channels.

To configure an individual channel:

- 1) Login as an Administrator or Engineer.
- 2) Select Menu>Configuration>Channel settings.
- 3) Select the required Relay Output Module.
- 4) Select the required channel and touch “Select”.
- 5) Touch Enable.
- 6) Check/Uncheck the Vote Count Reduction tick boxes and touch “Next”.

“Voting” is where an installation requires concurrent trigger events from at least 2 detectors before it triggers a response.

“Vote Count Reduction” is where the controller can be told to ignore voting channels that are in Fault mode or Inhibit mode or both, and will trigger an event when one or more detectors (not in fault or inhibit) are triggered.

Non-voting detectors are not affected by Vote Count Reduction.

Commissioning

- 7) Set input channels and events to link the Relay Output channel and touch “Finish”.
- 8) Check that all edited settings are correct and select “Apply”.
- 9) Confirm that all edited settings are correct and select “Update”.
- 10) Repeat 4 to 9 for all required mA Output channels.

7.6.7 Editing Relay Output Channel Settings (In Pictures)

Key:

A1:	Alarm 1
A2:	Alarm 2
A3:	Alarm 3
FLT:	Fault
INHIB:	Inhibit
WARN:	Warning

Commissioning

7.7 Data Logging

Set the Data Logging interval and threshold during configuration. A 0 %FSD threshold means that the TPPL will log the gas concentration at the specified intervals without checking changes in gas concentration. In contrast, a non-zero %FSD threshold setting will ignore fluctuations in low ambient gas concentrations and only check for rises in gas above the threshold (i.e. safe) setting.

Leave the setting at 0 seconds if you don't want to log gas concentration at the configured log interval. However, if you do want to monitor changes, you should start with a low threshold setting and slowly increase it by trial and error if you get too many unnecessary warnings.

Note: A low gas concentration %FSD reading at one sensor only applies to the area immediately surrounding that sensor, and may not indicate dangerous concentrations elsewhere in the room. Always consider using multiple sensors at differing heights and locations, be aware that sudden draughts can cause sharp rises in %FSD, and always take other safety measures (i.e. wearing Honeywell personal gas alarms) before entering or working in the monitored location.

To set or change Data Logging:

- 1) Log in as an Administrator or Engineer.
- 2) Select Menu>Configuration>Log Interval & Threshold.
- 3) Select a box and enter the details using the touchpad.
- 4) Select "Finish".
- 5) Make other changes or Log Out.

7.8 Touch Panel Configuration

To access the panel configuration:

- 1) Login as an Administrator or Engineer.
- 2) Select the Menu>Configuration>Display.
- 3) Select LCD Backlight Timeout and Brightness settings, or Start to calibrate the Touch Panel (see below).
- 4) Select Finish and return to the Configuration menu.

Parameter Name	Default Setting	Value Range	Comment
Backlight time out	30 seconds	30 seconds to 10 minutes or Always On	This is the time that the backlight will remain on after the touchscreen is idle. If a new event occurs, the backlight will come on and will remain on as long as the event remains unacknowledged.

7.8.1 How to Calibrate the Touch Panel

Calibrate the touch panel if the screen is not responding as expected.

To calibrate the screen:

- 1) Login as an Administrator or Engineer.
- 2) Select the Menu>Configuration>Display.
- 3) Touch "Start".
- 4) Follow the instructions on screen.
- 5) Select "Finish" and return to the Configuration menu.

Commissioning

7.9 Service Contact Settings

To set the Service contact:

- 1) Login as an Administrator or Engineer.
- 2) Select the Menu>Configuration>General>Service Contact.
- 3) Update the settings with your local service support contact details.
- 4) Select "Finish" and return to the Configuration menu.

7.10 Back up Configuration

It is recommended you back up the Touchpoint Plus configuration once commissioning is completed.

To back up the configuration:

- 1) If it is safe to do so, unscrew the handle security screws and open the enclosure door.
- 2) Ensure that a 2 to 32 GB (FAT32) standard SD Card with sufficient free space is inserted in the User interface module.
- 3) Login as an Administrator or Engineer.
- 4) Select the Menu>Configuration>Config Manager>Export.
- 5) Enter file name for the backed-up configuration and touch "Finish".
- 6) Touch "Export" to continue. The backup may take several minutes, and progress is shown on screen.
- 7) When backup is completed, remove the card and immediately fit a spare card with sufficient space to record event data.
- 8) Close the enclosure door and tighten the two handle security screws.
- 9) Return the system to normal operation.
- 10) Transfer the backup data to a dated folder on a PC or digital device for safekeeping. The Configuration backup file is stored on the SD Card in "\\CFG\TPP_CFG.bin".
- 11) You can reuse the SD card once the data has been transferred to a PC or other device and deleted from the card.
- 12) Restoring a configuration is the reverse process, i.e. Import instead of Export, but it can only be done by an Administrator.

Note: Before attempting to restore from a saved configuration you must ensure that the current status is exactly the same as it was when the backup file was exported. In other words the module installation status and commissioning status must be exactly the same or the system will not import the configuration data.

Commissioning

7.11 Calibrating mV Input Channels



Caution – Alarm Inhibit

Gas readings may be generated during this procedure. Disable or inhibit any operations or actions that may result from gas readings before starting this test.

For catalytic bead type detectors, the Analogue Input Modules form part of the measuring circuit. Therefore all commissioned mV channels remain in Inhibit state until they are calibrated.

You should consider alternative safety measures when performing these procedures.

7.11.1 Adjusting the mV Sensor Baseline

It is important to select “First Span” when calibrating a new or replacement sensor for the first time, and “Span” for all calibrations thereafter.

It is important to select “Adjust mV Baseline” when calibrating a new or replacement sensor for the first time, and “Span” for all calibrations thereafter. This also applies when either the detector *type* or sensor *type* is changed during channel configuration, even though the sensor itself remains the same.

Doing this correctly allows a time window in which to safely organize replacement of nearly spent catalytic bead sensors.

Doing it incorrectly may result in a spent sensor with no protection at all.

- 1) Replace the catalytic bead sensor in accordance with its” manual.
- 2) Check the mV sensor wiring is undamaged and correctly connected.
- 3) Perform the next check under clean air.
- 4) Login as an Administrator or Engineer.
- 5) Select the Menu>Maintenance>Adjust mV Baseline and select a mV input channel.
- 6) Touch “Start”.
- 7) Check mV sensor type setting is correct.
- 8) Carry out the sensor calibration as shown in the next section (the mV input channel will be automatically inhibited during this procedure).

7.11.2 Calibrating a mV Sensor Channel

To calibrate a mV input channel, follow the procedure below in combination with the relevant instructions in the sensor manual.

- 1) Login as an Engineer.
- 2) Select Menu>Maintenance>Gas Calibration. Select the channel to be calibrated.
- 3) Select “Start”. Zero calibration and apply clean air to the sensor.
- 4) View the reading until it is stable, and then touch” Apply”.
- 5) Confirm the zero calibration result and then touch “Next”.
- 6) Enter the concentration of the span gas and touch “Start”.
- 7) When ready touch “Start” and apply gas to the sensor.
- 8) View the reading until it is stable, and then touch “Apply”.
- 9) Confirm that the gas reading is correct.
- 10) Remove the span gas from the sensor, and confirm that the gas reading has returned to zero (the mV input channel will be automatically inhibited during the calibration procedure).

Commissioning

7.12 Calibrate mA input channel loops



Warning

Where the sensor or transmitter has the facility, the mA loop should always be calibrated at the Touchpoint Plus controller by forcing signal levels at the sensor / transmitter. Any gas calibration required must be carried out at the field device according to the manufacturer's instructions.

The Touchpoint Plus controller calibration should not be used to adjust for deficiencies in the sensor / transmitter gas calibration. Failure to observe this can result in significant accuracy errors.

Only trained technicians are authorized to carry out calibration.

Caution: Ensure that any relay activation (drenchers, repeater alarms, etc.) is inhibited before starting this test.

If the sensor is an Oxygen sensor that is not being used with a transmitter that has a force mA function, the span gas should normally be air at 20.9% v/v Oxygen.

The Touchpoint Plus controller calibration should not be used to correct deficiencies in the sensor calibration; instead carry out a gas calibration at the sensor according to the manufacturer's instructions.

To calibrate the mA loop of an input channel, please follow the procedure below in combination with the relevant instructions in the sensor manual.

- 1) Login as an Administrator or Engineer.
- 2) Select the Menu>Maintenance>Gas Calibration. Select the channel to be calibrated.
- 3) Select "Start" for Zero Calibration.
- 4) Apply a test gas to the sensor / field device so that it will generate a 4 mA signal.
- 5) View the reading until it is stable, and then touch "Apply".
- 6) Select "Next" to move to the Span Calibration screen.
- 7) Enter the target span gas concentration and touch "Apply".
- 8) Select "Start" for Span Calibration.
- 9) View the reading until it is stable, and then touch "Apply".

Maintenance

Chapter 8 – Maintenance

This chapter describes how to perform common maintenance operations and upgrades. The required frequency of inspection and maintenance will depend on local site conditions and will need to be established through experience. Please refer to *IEC/EN 60079-29-2* or other local or national regulations for guidance on establishing an appropriate maintenance routine.



Warning

Read *Chapter 2 Safety* before carrying out any work on the system.



Warning

If the relays are switching mains voltages, hazardous live terminals may be present within the Relay Output Module even if the Touchpoint Plus system is isolated.

Ensure that all current is isolated and dissipated before touching live terminals.

8.1 Routine Maintenance



Caution

Test outputs will be generated and relays will be activated during Cause and Effect Testing. Ensure that relay activated output systems (i.e. emergency deluge / sirens etc.) are isolated before starting the test.



Caution

While an Operator could Force a channel, an Engineer is required to isolate services, carry out tests, Clear Force, and restore the system to full operational status.

For these reasons Operators are advised to carry out visual inspections and cleaning only, unless under the direct supervision of the engineer.

8.1.1 Weekly Checks

- Visually inspect all cables and conduits.
- Check for loose connections, security of attachment, and signs of damage.
- Wipe the Touchpoint Plus Controller with a soft damp cloth or PC Screen cleaner.
- Check for dust contamination.
- Periodically exercise the relays to confirm functionality (see *Caution* above).



Caution

Do not use solvent or abrasives to clean any part of the Touchpoint Plus System.

Maintenance

8.1.2 Exercising the Relays

Relay output channels can be tested by forcing the relays to an active state:

- 1) Ensure that relay activated output systems (i.e. emergency deluge / sirens etc.) are isolated before starting the test.
- 2) Login as an Administrator or Engineer.
- 3) Select Menu>System test>Force Relay.
- 4) Select the Relay module to be tested, and toggle it off and on for the specific relay channel.
- 5) Check the relay out contact using a voltmeter.
- 6) Repeat steps 3 and 4 for all relay output channels.
- 7) Proceed to the next step.

8.1.3 Exercising the mA Output

mA output channels can be tested by forcing the mA output:

- 1) Ensure that relay activated output systems (i.e. emergency deluge / sirens etc.) are isolated before starting the test.
- 2) Login as an Administrator or Engineer.
- 3) Select the Menu>System test>Force 4-20mA.
- 4) Select the channel to be tested and set the mA output value. Touch "Apply".
- 5) Check the mA output level using an ammeter.
- 6) Repeat steps 2 and 4 for all relay output channels.
- 7) Select "Finish" when the tests are completed.

8.1.4 Exercising the Audio/Visual Alarm

Audio/visual alarm can be tested by forcing signal out:

- 1) Ensure that relay activated output systems (i.e. emergency deluge / sirens etc.) are isolated before starting the test.
- 2) Login as an Administrator or Engineer.
- 3) Select the Menu>System test >Dedicated Alarm Contacts.
- 4) Toggle the alarm selector button off and on for each output (see below).
- 5) Check the voltage level using a voltmeter.
- 6) Select "Finish" when the tests are completed.



Caution

Ensure that the system is returned to normal operation once testing is complete.

Maintenance

8.2 Testing the Touchpoint Plus System

8.2.1 Introduction

The Touchpoint Plus system has two test modes available, which together enable a full test of the system. The test modes are:

- Field Inputs Test – tests all input channel devices without affecting any outputs.
- Cause and Effect Test – forces the Touchpoint Plus input channels to specific states to test that the correct relay output channels are activated.



Warning

The Touchpoint Plus system is not operational while in Test Mode, and all field device inputs will be ignored. Ensure that alternative safety arrangements are maintained during test, and ensure that Test Mode is exited as soon as testing is completed.



Caution

Test output conditions will be simulated and relays will be activated during the Cause and Effect Test. Ensure that relay activated output systems (i.e. emergency deluge / sirens etc.) are isolated before starting the test.

When any of the test modes is active, the System Failure relay will activate to indicate that the safety function of the system is not operating. A Fault will be shown as an Active Event on the User Interface.

Once a test mode is active, the system will remain in test mode until the test is exited. The only exception is in the case of a power cycle of the Touchpoint Plus system, when it will restart in normal mode.

All events generated while the system is in test mode will be logged in the event history. Therefore a record of the testing can be generated once it is complete (see *Normal Operation, Generate Reports*).



Caution

Ensure that the system is returned to normal operation once testing is completed.

8.2.2 Field Inputs Test

To carry out the Field Inputs Test:

- 1) Login as an Administrator or Engineer.
- 2) Set "Inhibit Input Channels".
- 3) Supply test gas for the input channels.
- 4) System will display the gas reading and inhibit state.
- 5) Pre-configured Inhibit outputs (relays and mA output channels with output inhibit state) will be triggered but all alarm outputs are inhibited.

Maintenance

8.2.3 Cause and Effect Test

During this test, all field device inputs will be ignored by the Touchpoint Plus system. The Cause and Effect matrix will be evaluated based on simulated input states and outputs will be generated.



Caution

Test outputs will be generated and relays will be activated during the Cause and Effect Test. Ensure that relay activated output systems (i.e. emergency deluge / sirens etc.) are isolated before starting the test.

This test has two purposes:

- 1) To verify that Cause and Effect matrix configuration is correct by forcing the state of the input channels to various combinations.
- 2) To check that the output channels are configured correctly, including delay on/off times etc.

To use the Cause and Effect Test mode:

- 1) Login as an Administrator or Engineer.
- 2) Select the Menu>System Test>Relay C&E Matrix>Relay channel.
- 3) Select the channel to be tested.
- 4) The system will display a matrix of all the input channels that are linked to the output channel being tested.
- 5) Select the input channel states that you wish to simulate, and click on "Simulate".
- 6) Check that the relay output state is correct and touch "Finish".
- 7) Repeat steps 2–6 for the next channel.



Caution

Ensure that the system is returned to normal operation once testing is complete.

Maintenance

8.3 How to Replace a Faulty I/O Module

A faulty I/O module can be replaced with another of the same type, without needing to reprogram the configuration. Touchpoint Plus will automatically copy over the configuration to the new module.



Warning

If the relays are switching mains voltages, hazardous live terminals may be present within the Relay Output Module even if the Touchpoint Plus system is isolated.
Ensure that all current is isolated and dissipated before touching live terminals.



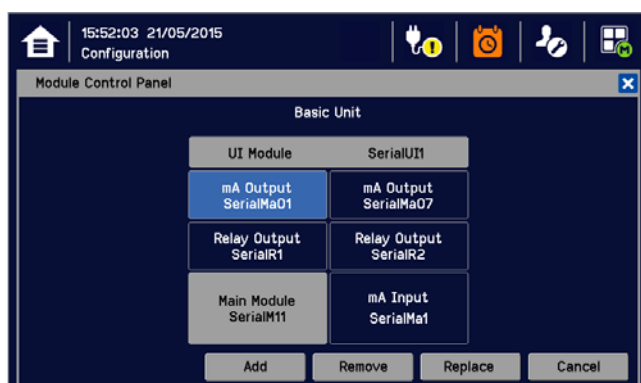
Anti-Static Precautions

Antistatic Precautions are required to prevent severe damage to electronic components.

Note: The new module must be the same type and the same number of inputs and outputs as the old module.

To replace a faulty module:

- 1) Switch off the Touchpoint Plus (Menu>Maintenance> Power off).
- 2) Isolate the power supplies and switch the battery to “Off” (if there is a back-up battery installed).
- 3) Disconnect the faulty module.
- 4) Replace the module.
- 5) Reconnect the module.
- 6) Switch the battery to “On” (if there is a back-up battery installed).
- 7) Switch on the TouchPoint Plus.
- 8) Login as an Administrator.
- 9) Select Menu>Configuration>Module Control Panel.
- 10) In the Board Control panel, select the empty blue block corresponding to the replaced module and touch “Replace”.



Key to I/O Module colour

Gray: Mandatory modules that cannot be added removed or replaced.

Yellow: A Module was added previously but cannot be detected now (i.e. Module removed).

Light blue: Serial number or module type is not matched (i.e. an I/O Module has been replaced).

Background colour: This module is installed.

Maintenance

8.4 How to Add a New I/O Module

The Touchpoint Plus system can easily be expanded by adding new I/O modules.



Anti-Static Precautions

Antistatic Precautions are required to prevent severe damage to electronic components.

Note: A module that has previously been configured in one system cannot be added to another system, unless it was correctly removed from the original system's configuration.

- 1) Switch off the Touchpoint Plus (Select Menu>Maintenance> Power off).
- 2) Isolate the power supplies and switch the battery to "Off" (if there is a back-up battery installed).
- 3) Fit the new module of the required type to an empty slot, ensuring that that the module is the correct way up and with the label towards you.
- 4) Electrically connect the new module.
- 5) Switch the battery to "On" (if there is a back-up battery installed).
- 6) Switch on the TouchPoint Plus.
- 7) Login as an Administrator or Engineer.
- 8) Select the Menu>Configuration>Module Control Panel.
- 9) Select an empty block corresponding to the new module and touch "Add".
- 10) Commission each channel in turn.

Note: See *Ch.7 Commissioning* for detailed instructions for further information.

8.5 How to Decommission and Remove an I/O Module

Note: Failing to follow this procedure correctly could render the removed module unusable.



Warning

If the relays are switching mains voltages, hazardous live terminals may be present within the Relay Output Module even if the Touchpoint Plus system is isolated.



Anti-Static Precautions

Antistatic Precautions are required to prevent severe damage to electronic components.

To remove a module:

- 1) Login as an Administrator or Engineer.
- 2) Select Menu>Configuration>Module Control panel.
- 3) Select the I/O module block that you want to remove, and touch "Remove".
- 4) Switch off the Touchpoint Plus (Menu>Maintenance>Power off).
- 5) Isolate the power supplies and switch the battery to "Off" (if there is a back-up battery installed).
- 6) Electrically disconnect the module, and then remove it (see *Ch. 8.4* above if you want to replace it with another module).
- 7) Switch the battery to "On" (if there is a back-up battery installed).
- 8) Switch on the TouchPoint Plus.

Maintenance

8.6 How to Update the Sensor Catalogue

From time to time, new versions of the sensor catalogue will be released containing updates and new products from Honeywell Analytics.

To update the sensor catalogue in the Touchpoint Plus:

- 1) Download or copy the new sensor catalogue [TPP_CAT.bin] onto a device with an SD Card reader.
- 2) Create a new folder "CATALOG" on an empty 2 to 32 GB (FAT32) standard SD card and copy the downloaded sensor catalogue file into it.
- 3) Remove the TPPP data SD card from the UI module and insert the sensor catalogue SD card.
- 4) Login as an Administrator.
- 5) From the System Status screen select Menu>Maintenance>Update system>SensorCatalog.
- 6) Confirm the update.
- 7) The sensor catalogue file will be updated. **Note:** The update may take several minutes.
- 8) Remove the sensor SD card and insert the data SD card.

8.7 How to Backup / Restore configuration



Caution

You should always take a new back up of the Touchpoint Plus system configuration after changes are made and confirmed to be OK.

Note: The Touchpoint Plus system remains available during this procedure.

- 1) Ensure that an empty 2 to 32 GB (FAT32) standard SD Card is inserted in the User Interface module.
- 2) Login as an Engineer.
- 3) Select the Menu>Configuration>Config Manager>Export.
- 4) Enter a file name for the backed-up configuration and touch "Finish".
- 5) Touch "Export" and, if the file name is valid, it will start the configuration backup process. The backup may take several minutes, and progress is shown on screen.
- 6) When the backup is completed, remove the card and immediately fit a spare card to record event data.
- 7) Return the system to normal operation.
- 8) Transfer the backup data to a dated folder on a PC or digital device for safekeeping. The Configuration backup file is stored on the SD Card in ":\\CFG\\ [your file name]".
- 9) You can reuse the SD card once the data has been transferred to a PC or other device and deleted from the card.

Note: You cannot import configuration files if the I/O module configuration has changed since the last backup.

To restore the configuration:

- 1) Insert the SD card with "\\CFG\\your file name]" into the UI module SD Card slot.
- 2) Login as an Administrator.
- 3) Select the Menu>Configuration>Config Manager>Import and then choose your file.
- 4) Once the action is confirmed, the configuration restoration process starts and a progress message is displayed. The process may take several minutes depending on the system size.

Maintenance

8.8 How to Update Firmware

A Firmware update is usually only carried out to cure a fault or to give a system upgrade. Firmware updates are usually optional and are not recommended if the system performs satisfactorily “as is”.

Firmware and software updates should normally be carried out only by a Honeywell trained Engineer or an Engineer trained in accordance with this Technical Manual.



Caution

Alternative site safety arrangements should be made during this procedure as the Touchpoint Plus system is **not** available during firmware updates, and they may take several minutes to complete.



Caution

Before starting the firmware update, confirm that the new User Interface module firmware is compatible with both the installed I/O Module firmware and the Main module (see below).
Failure to do so may cause unexpected complications.

8.8.1 How to Check System Compatibility

- 1) Select Menu> Information>System information.
- 2) **Note** the firmware versions already installed.
- 3) Consult the Touchpoint Plus users support for compatibility information.
- 4) Contact your local service representative for advice if the new firmware is not compatible with the existing Modules.

8.8.2 How to Update the Firmware

Caution: A power cycle of the Touchpoint Plus system is required during this procedure.

To update the Firmware:

- 1) Download the required Firmware onto a device with an SD Card reader.
- 2) The Firmware is contained in the file “\FW*.bin”. Copy this file onto a 2 to 32 GB (FAT32) standard SD card (do not put it in a folder).
- 3) Ensure it is safe to do so, then unscrew the enclosure handle securing screws and pull the handle to open the door.
- 4) Remove the installed SD Card. Limited event logging will carry on internally for a short while, but some data may be lost if the update takes too long.
- 5) Insert the SD card containing the update file into the UI module.
- 6) Login as an Administrator.
- 7) Select the Menu>Maintenance>Update system>Software.
- 8) Select a Module and browse the appropriate firmware file in the SD card. Check the listed current and update versions. Touch “Update” when ready.
- 9) When the updates are completed, the system will reboot automatically if required.
- 10) Repeat steps 8 and 9 for all other affected modules.
- 11) Remove the SD card and refit the event logging SD card.
- 12) Close the door and secure the access handle.
- 13) Check that the system status is OK and no faults or inhibits or errors are shown.

Maintenance

8.9 How to Change the SD Card

Note: The system can accept standard SD cards from 2 to 32 GB (FAT32), and will provide a notification when the card has less than 50 Mb of free space.

Caution: Do not leave the SD card out for too long or some event data may be lost.

To change the SD Card:

- 1) Select Menu>Maintenance>SD Card>Eject.
- 2) When prompted, remove the SD Card and insert a 2 to 32 GB (FAT32) standard card. Note the correct orientation in the picture below.
- 3) Confirm that the screen shows the SD Card as being correctly inserted and that it has sufficient free space (i.e. >50 Mb).



Figure 33. SD Card Location

Maintenance

8.10 How to Calibrate mV Input Channels

Catalytic sensors should be calibrated periodically according to the manufacturer's recommendations. This should be a two-person job to avoid the controller timing out and losing the settings.

Note: To enable a calibration interval for the channel, edit the interval setting before starting calibration (see *Ch.7.6.2 Configuring a Channel* and *Ch.7.6.3 Editing a Configured Channel*).

You should select First Span only when calibrating a new or replacement sensor for the first time. You then adjust the mV Baseline, and then you should use Span for all calibrations thereafter (see Note below).

Note: Adjustment of the Baseline is only required when a mV channel is configured for the first time or when a catalytic bead element is replaced. Once the Baseline is established it should not be adjusted for second or subsequent gas calibrations, or until the next catalytic bead replacement.



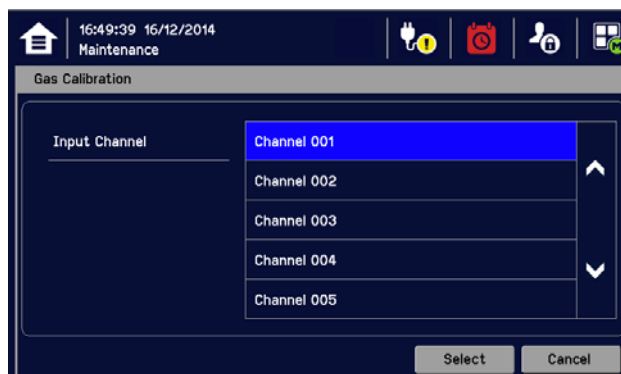
Caution

For greater accuracy, catalytic gas detectors should be calibrated using a certified gas/air mixture equal to 50 %LEL of the actual target gas being monitored. Always refer to the sensor technical manual for detailed information.

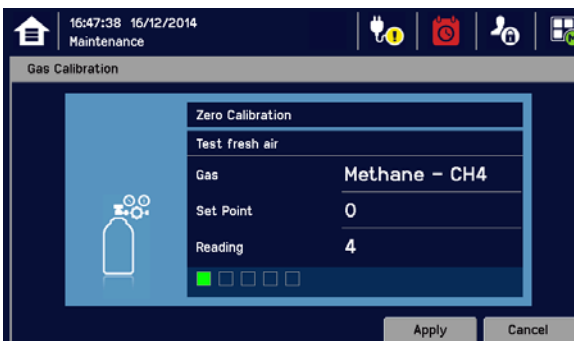
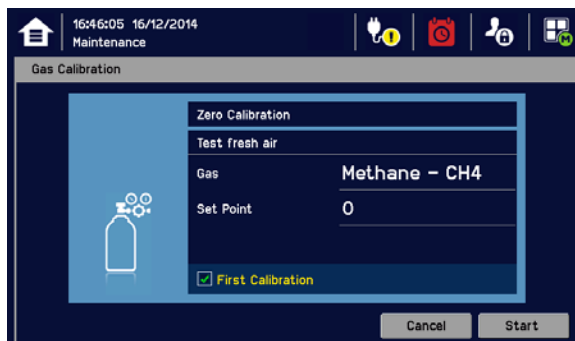
If you cannot obtain an exact or certified span gas match you can carry out a "cross-calibration" using a similar hydrocarbon / air mix. Always follow the sensor manufacturer's data sheet when cross-calibrating sensors.

To calibrate a mV Input Channel:

- 1) Install or replace catalytic bead sensor elements according to their technical manual.
- 2) Login as an Administrator or Engineer.
- 3) Select the Menu>Maintenance>Adjust mV Baseline and select a mV input channel.
- 4) Select the Menu>Maintenance>Gas Calibration. Select the channel to be calibrated:

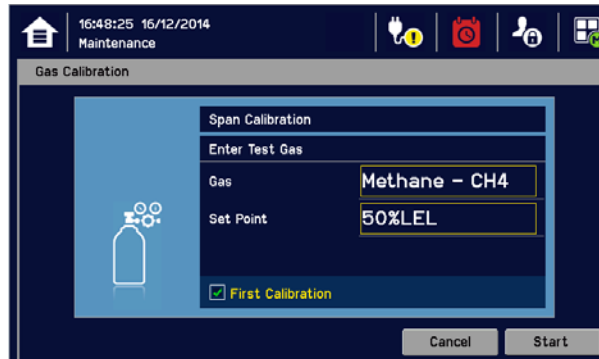


- 5) Select "Start" Zero calibration and apply clean air to the sensor:



Maintenance

- 6) View the reading until it is stable, and then touch “Apply”.
- 7) Confirm that the gas reading is stable, and touch “Next”.
- 8) Enter the concentration of the span gas and touch “Start”:



- 9) When ready touch “Start” and apply gas to the sensor.
- 10) View the reading until it is stable, and then touch “Apply”. This may take 3 – 5 minutes, depending on the gas type.
- 11) Confirm that the gas reading is correct.
- 12) Remove the span gas from the sensor, and confirm that the gas reading has returned to zero.

Maintenance

8.11 Back up Battery Maintenance



Danger

Replace the battery pack with Honeywell Analytics part no. **TPPLSIBB** and the PCB CMOS battery with type **CR2032** only.

Use of other batteries may present a risk of fire or explosion.



Danger

Lithium batteries may cause severe injury or death if put in the mouth or swallowed.
Always keep them away from children and dispose of them as hazardous waste.



Caution

According to local laws and regulations the battery installed within your product should be disposed of separately from household waste. When the battery reaches its end of life, take it to a collection point designated by local authorities.

Note: The DC 24 V battery pack has an integral 15 A over-current protection fuse, and will accept a nominal input charge of **24 – 32 VDC**. (<24 VDC will not charge the battery to the level required for backup power.)

8.11.1 Recommended Scheduled Maintenance

- Visually inspect the Touchpoint Plus Battery and (as the enclosure is open) all cabling.
- Check for signs of damage, deterioration, or loose connections.
- Periodically check that the cooling vents have not become obstructed.

8.11.2 How to Replace the Battery Pack



Danger

Touchpoint Plus shall not be operated with the access door unsecured when in Normal mode.
Failing to secure it properly will risk fire or explosion and will invalidate Regulatory Approval.

The battery pack has circuitry that puts it into sleep mode to save power when it is not connected and running. Connecting it to a powered-up Touchpoint Plus causes the battery to change to active mode and it will function normally after a short booster charge.

To replace the battery pack:

- 1) Ensure that the atmosphere is below flammable levels.
- 2) Leave the Touchpoint Plus Controller powered on.
- 3) Unscrew the two locking handle security screws and open the enclosure.
- 4) Switch the backup battery On/Off switch to **Off** (Fig. 31) to isolate the battery.
- 5) Replace the battery pack with Honeywell Analytics Part No. **TPPLSIBB**.

Maintenance

- 6) Switch the backup battery On/Off switch back to **On**.
- 7) Close the enclosure door and secure the handle with the two security screws.



Figure 34. Battery On/Off Switch and Battery Connector

Note: Ensure that the battery On/Off switch is in the **On** position before closing the access door or the backup battery will not work when it is most required.

8.12 Return to Factory Default Settings

If required, the system Administrator can return the TPPL Controller to its Factory Default settings.

Warning

Returning TPPP to its Factory Default settings will initialize all user settings i.e. mA and mV Input channel calibrations, Relay and mA Output settings etc.

Your TPPP system may become inoperative until it is reconfigured correctly (see *Ch. 7 Commissioning*), and you should put alternative safety arrangements in place until the system is returned to normal operation.

Passwords are not changed when resetting to Factory Default settings.

To reset the Touchpoint Plus to its Factory Default settings:

- 1) Log in as an Administrator.
- 2) Select Maintenance>Service Mode>Reset to Default.
- 3) If required, recommission the Touchpoint Plus system (Ch. 7 Commissioning).

Troubleshooting

Chapter 9 – Troubleshooting



Warning

Read **Chapter 2 Safety**
before carrying out any work on the gas detection systems.

Problems are signaled by an error code shown on the control panel display. The error is recorded in the event log and the screen can be cancelled once the fault is corrected.

The error messages are explained in Chapter 16: Fault Codes.

Contact Honeywell Analytics Technical Support if an error appears repeatedly, if it cannot be cleared, or if it is not listed in Chapter 16: Fault Codes.

9.1 Calling for Technical Support.

Please contact Honeywell Analytics Technical Support if your problem cannot be resolved or if you need additional help. You can find our contact details on the rear cover of this manual.

To assist the Honeywell Helpdesk in giving you technical support, it would be helpful to have the following information ready:

- Your Company contact details and a contact name and department.
- The system model type, i.e. Touchpoint Plus, and its serial number. These can be found on the system identification label.
- The software version found under the **System Info** menu option key.
- Details of the difficulty that you are experiencing.
- Error message and code numbers that were shown on the display screen.

To assist with the fault diagnosis you may be asked to send a copy of your event log by email.

Technical Specifications

Chapter 10 – Technical Specifications

10.1 Environmental

Sealed enclosures are rated IP65 NEMA 4x, and can be installed indoors only in a Pollution Degree 2, 10 to 95 %RH Non-Condensing environment that affords total protection from rain, snow and direct sunlight.

Operating Temperature	-10 °C to + 55 °C
Storage Temperature	-25 °C to + 60 °C
Operating Humidity (closed)	10 to 90 %RH (non-condensing)

10.2 User Interface and Main Module

LCD Touch Screen Type	7" TFT Color LCD with LED Backlight (resistive touch screen) 800 x 480 pixels (WVGA) Resolution Active area 155.08 mm (H) x 86.92 mm (V)
Front Display	Green Power LED
	Red Alarm LED
	Yellow Fault/inhibit LED
	Alarm Mute /Reset Push Button
	Alarm Buzzer (Sound Level: 70 dB at 1 m)
Output Relays	Two configurable and one fixed System State Relays: 5 A @ 250 VAC, 5 A @ 30 VDC (non-inductive load)
Dedicated Audio and Visual alarm	Four outputs to external devices Supply voltage Vs (18 – 32 VDC) –1.8* VDC (max), max 300 mA per channel *Voltage drop at ambient temperature
Remote Terminals	Optional remote acknowledge, reset and inhibit

Technical Specifications

10.3 I/O Modules

10.3.1 mA Input Module

Description	2,4 and 8-channel Analogue Input Module for 2-wire or 3-wire 4 – 20 mA detector signals
Sensor Configuration	2-wire or 3-wire current source
Signal Measurement Range	0 – 24 mA
Sense Resistance	66 Ω
Module Power Consumption	Max 0.4 W (Excludes power to mA detector)
Field Device Power Supply Vmax (V_{max})	Supply voltage V _s (18 – 32 VDC) – *1.8 VDC (max) *Voltage drop in Touchpoint Plus at T _a .
Field Device Power Supply Power max (single channel)	15 W
Field Device Power Supply Power max (eight channels)	40 W
Maximum cable length for mA Input loop (R_{loop})	$R_{loop} = (V_{controller} - 1.8 \text{ VDC} - V_{detector \text{ min}}) / I_{detector}$ Maximum Cable run length = $R_{loop} / (\Omega \text{ per meter})$. Example: V _{controller} = 24 VDC, TPP Voltage drop = 1.8 VDC, V _{detector} = 18 VDC (18 to 32 VDC), I _{detector} = From detector specification.

10.3.2 mV Input Module

Description	2,4 and 8-channel Analogue Input Module for mV-Bridge signals
Current Range	200 mA
Drive method	Constant current
Maximum Power Consumption	19 W (including power to detector @ loop resistance of 36 Ω)
Maximum Loop Resistance	36 Ω at 200 mA (including sensor)
Electrical Connections	3-wire mV–Bridge

10.3.3 mA Output Module

Description	4-channel Analogue Output Module for 2 wire 4 – 20 mA signals
Module Power Consumption (Max.)	3 W (700 mA loop resistance @ 20 mA output)
Sensor Configuration	2-wire current source, Isolated current loop output
Signal Measurement Range	0 – 20 mA (4 – 20 mA = 0 – 100% scale)
Loop Resistance	33 – 700 Ω

Technical Specifications

10.3.4 Relay Output Module

Description	12-channel Relay Output Module incorporating 12 single pole change over (SPDT) relays
Power Consumption Maximum	2.6 W (with all relays energized)
Relay Contacts (~ / ⋯)	5 A @ 250 VAC / 5 A @ 30 VDC
Relay Operation	Individually configurable for – normally energized / de-energized operation

10.4 Power Supplies

10.4.1 External Supplies

SMPS Power Supply	156 W
AC Input Voltage Range (~)	AC 110/220 V ±10 % of nominal (manual switching)
DC Input Voltage Range (⋯)	DC 18 – 32 V SELV Supply
Input Frequency Range (~)	AC 50 – 60 Hz ± 6 %
Output Voltage (⋯)	DC 24 V
Dimension	199 x 98 x 38mm (L x W x H)

10.4.2 Backup Battery

Description	22.2 V Lithium - ion Battery, 2600mAh
Electrical Connection	6 X 3.7 VDC in series
Dimensions/Weight	124.8 x 78.9 x 29.2 mm, 425g
Operating Temperature	0 – 50 °C
Operating Humidity	10 to 90% RH (non-condensing)
Storage Life Limitations	1 Year: –20 °C to +25 °C (–4 °F to +077 °F) 3 months: –20 °C to +45 °C (–4 °F to +113 °F) 1 month: –20 °C to +60 °C (–4 °F to +140 °F)
Storage Lifetime without re-charge	1 year
Input Current (charging) (⋯)	DC 24 – 32 V @ 0.38 mA max.
Output Voltage (when supplying) (⋯)	17.4 – 25.2 VDC
Maximum Input Current	250 mA
Maximum Output Current	5 A
Current Limit Protection	FUSE 15 A (non-replaceable)

Technical Specifications

10.5 Enclosures

10.5.1 Wall Mount Enclosure

Material	PC ABS
Cable Gland Plug	PG16
Environmental Protection	IP65 (when fully closed and locked), NEMA 4x indoors
Operating Humidity	10 to 90 %RH (non-condensing)
Mounting Bracket	W 423 x D 325 x H 16.5 mm – 1.5 Kg (approx.)
Enclosure Weight	8.5 Kg (approx)
Dimension	426 mm x 300 mm x 156 mm (16.9 ins x 11.8 ins x 6.2 ins)

Certifications

Chapter 11 – Certifications

11.1 EC declaration of conformity

A full EC declaration of conformity is available on either original hardcopy or electronic file (Honeywell Analytics website). This document lists the European Standards with which Touchpoint Plus complies.



WARNING

Only the combustible gas detection portion of this instrument has been assessed for performance in accordance with the ATEX Directive.

AVERTISSEMENT

Seulement la partie détection de gaz explosif de cet équipement a fait l'objet de tests de performance métrologique suivant la directive ATEX.



WARNING

CSA performance is only valid when connected to Honeywell Model 705 Catalytic Gas Detectors or suitably approved 4 – 20 mA Gas Detectors.

AVERTISSEMENT

La performance en conformité avec la CSA est valide uniquement lorsque l'appareil est connecté aux détecteurs de gaz catalytiques Honeywell modèle 705 ou à des détecteurs de gaz 4 – 20 mA dûment approuvés.

11.2 National and International Certificates of Compliance

The Touchpoint Plus Process Control Equipment holds the following National and International Certificates and Certification Codes:

Title	Standards	Certificates
Ingression protection	IP65 and NEMA 4X	
Electrical Safety	UL/IEC/EN 61010-1, UL 508 CSA C22.2 No.61010-1/No.142	UL File E466771 UL File E470577
EMC/RFI	EMC Directive (EN 50270:2015)	
Battery Pack	UN 38.3 (IEC 62133), UL 2054, UL 60950-1 CSA C22.2 No.60950-1-07	UL File MH60522
Performance	ISA 12.13.01 and CSA C22.2 No.152	UL File EXXXXXX (To Be Determined)

Copies of the certificates are available on request.

Note 1: OEMs are responsible for ensuring that their systems are certified in accordance with these tables and any 3rd-party requirements.



WARNING

Ambient temperature: Dependent on components fitted, check individual rating plates.

AVERTISSEMENT

Température ambiante : elle dépend des composants assemblés, vérifier individuellement les plages de température

Replacement Parts and Optional Extras

Chapter 12 – Replacement Parts and Optional Extras

The following replacement parts and optional extras are available to order, but Honeywell Analytics cannot accept responsibility for their incorrect fitment or use.

All Honeywell supplied replacement parts are covered by the standard Honeywell warranty service.

With the exception of SD Cards, the equipment listed below is only to be installed or replaced by the Manufacturer's trained personnel, or by competent persons trained in accordance with the Manufacturer's installation instructions.

Description	Part Number
SD Card (2 to 32 GB) FAT32 standard format	Local purchase
SD Card (8GB)	TPPLOSDC
Backup battery pack	TPPLSIBB
Input Module 2 Channel mA	TPPLSMAAI2
Input Module 4 Channel mA	TPPLSMAAI4
Input Module 8 Channel mA	TPPLSMAAI8
Input Module 2 Channel mV	TPPLSMAVI2
Input Module 4 Channel mV	TPPLSMAVI4
Input Module 8 Channel mV	TPPLSMAVI8
Output Module 4 Channel mA	TPPLSMAAO4
Output Module 12 Channel Relay	TPPLSMAROC
Main Module	TPPLSMPM
SMPS (150 W, 110 / 220 VAC)	TPPLSSAM
Back Plane PCB Assembly	TPPLSBPM
UI PCB	TPPLSDPM
Touch Screen LCD	TPPLSLTSM
External Strobe	M-700123
Cable gland	TPPLOGLD
Metal grounding for cable gland	TPPLOMGND
Wall Mounting Bracket	TPPLOWMB

TPPL Configuration Information

Chapter 13 – TPPL Configuration Information

The following table shows how your TPPL part number relates to your TPPL configuration, and it is this part number that provides valuable information to Technical Support if you need additional help.

Your TPPL part number can be found on the TPPL rating plate.

Part No.	Product Name	Unit Type	Power	Mounting Type	Input Options	Relay Options	Output Options	Battery	External Comms	Web Server	Certification
See Example below.	TPPL	B = Base Unit	A = 110/220 VAC	W = Wall Mounted	A2 = 2ch mA Input	S = 12 relays	4 = 4ch mA Output	B = Backup Battery	N = No	N = No	N = No
					V2 = 2ch mV Input						
					A4 = 4ch mA Input	D = 24 relays	8 = 8ch mA Output				
			V4 = 4ch mV Input								
			D = 18 - 32 VDC		A8 = 8ch mA Input	N = No Relay	N = No mA Output	N = None			
					V8 = 8ch mV Input						
Example Part Number:	TPPL	B	A	W	A4	S	4	B	N	N	N





Table 12. TPPL Part Number Configuration Chart

Glossary of Icons

Chapter 14 – Glossary of Icons

#	Icon	Description	#	Icon	Description
1		Summary View Alarm	28		Trend Graph
2		Summary View Normal	29		Processing Ok
3		Summary View	30		Processing Fail
4		List View	31		Cancel
5		Tile View	32		Scroll
6		Output View	33		Stop Scrolling
7		Information Menu	34		List Up
8		History Information	35		List Down
9		Event History Alarm	36		Bottom Up
10		Event History Fault	37		Bottom Down
11		Event History Inhibit	38		Bottom Left
12		Event History Warning	39		Bottom Right
13		No One Logged In	40		Maintenance Menu
14		Operator Logged In	41		System Setting Menu
15		Engineer Logged In	42		Configuration Menu
16		Administrator Logged In	43		Configuration
17		Menu Select	44		Calibration
18		Power Connected	45		Inhibit
19		Battery Backup State	46		Channel Location
20		SD Card Logging Data	47		Base Line Adjust
21		SD Card Fault	48		Peak Reset
22		Alarm Filter	49		Trend
23		Fault Filter	50		Alarm Pop Up
24		Inhibit Filter	51		Error Pop Up
25		Warning Filter	52		Fault Pop Up
26		Filter Information	53		Inhibit Pop Up
27		Filter Refresh	54		Warning Pop Up

Glossary of Icons

#	Icon	Description	#	Icon	Description
55		Low Battery Warning	58		Gas Calibration
56		Critically Low Battery			
57		Power Off View			

Compatible Sensors

Chapter 15 – Compatible Sensors

The following table lists Honeywell supplied gas sensors that are known to be compatible with Touchpoint Plus.

Customer supplied 3rd Party sensors may be used, but Honeywell is unable to support them or guarantee their performance.

Honeywell Gas Detectors	
Midas	Series 3000
Optima Plus	Signalpoint Pro
RAEGUARD 2 PID	Signalpoint Toxic
Satellite XT	XCD CAT
Searchline Excel LR	XCD EC
Searchline Excel MR	XCD IR
Searchline Excel SR	XNX CAT
Sensepoint RFD	XNX EC
Sensepoint Toxic	XNX IR

Please refer to the respective sensor data sheets for more detailed information.

Table 13. TPPL Gas Detectors

Note: Touchpoint Plus is not currently approved as a fire or flame detection system, but this list will be expanded when its flammables capability is fully tested and certified.

Configurable Parameter Reference Guide

Chapter 16 – Configurable Parameter Reference Guide

Parameter Name	Parameter Description	Applies to	Read/Write	Default Value	Measurement units
Alarm 1 Enable	Alarm enable/disable. 0 = Disabled 1 = Enabled	All	R/W	1	n/a
Alarm 1 Function	Type of alarm function. Default is threshold. 0=Threshold, 1=STEL, 2=TWA	All	R/W	0	n/a
Alarm 1 Level	Alarm 1 threshold concentration	All	R/W	20 %FSD	conc.
Alarm 1 Trigger	Alarm trigger option. 0 = Rising 1 = Falling	All	R/W	1 for O ₂ , 0 for other gases	n/a
Alarm 2 Enable	Alarm enable/disable. 0 = Disabled 1 = Enabled	All	R/W	1	n/a
Alarm 2 Function	Type of alarm function. Default is threshold. 0=Threshold, 1=STEL, 2=TWA	All	R/W	0	n/a
Alarm 2 Level	Alarm 2 threshold concentration	All	R/W	40 %FSD	conc.
Alarm 2 Trigger	Alarm trigger option. 0 = Rising 1 = Falling	All	R/W	1 for O ₂ , 0 for other gases	n/a
Alarm 3 Enable	Alarm enable/disable. 0 = Disabled 1 = Enabled	All	R/W	1	n/a
Alarm 3 Function	Type of alarm function. Default is threshold. 0=Threshold, 1=STEL, 2=TWA	All	R/W	0	n/a
Alarm 3 Level	Alarm 3 threshold concentration	All	R/W	60 %FSD	conc.
Alarm 3 Trigger	Alarm trigger option. 0 = Rising 1 = Falling	All	R/W	0	n/a
Alarm Hysteresis	Alarm hysteresis is to avoid the alarm from frequent on/off when the gas reading is close to the alarm threshold. When clearing the gas alarm, the gas reading should go below gas alarm threshold hysteresis. The hysteresis is defined in % of Full range (Default 2%)	All	R/W	2	%FSD
Alarm Latch	Alarm latch option. Alarm will be continued until manual user reset if latching is enabled. 0: Disabled, 1: Enabled	All	R/W	1	n/a
Cal Interval	Recommended calibration interval in days. Default is 6 months	All	R/W	180	days

Configurable Parameter Reference Guide

Parameter Name	Parameter Description	Applies to	Read/Write	Default Value	Measurement units
Default Range	Full scale range	All	R/W		conc.
Detector Name	Detector name	All	R/W	per detector	n/a
Formula Gas Name	Formula for the target measuring gas	All	R	per target gas	n/a
Gas Name	Target gas name	All	R/W	per target gas	n/a
Gas Over Range Limit	Over-range gas concentration limit. This parameter is used to generate over-range warning.	All	R/W	110 %FSD	conc.
Gas Type	Toxic (0), O2 (1), Flammable (2) Set automatically by Gas Type	All	R/W	per target gas	n/a
Gas Under Range Limit	Negative reading limit	All	R/W	-7 %FSD	conc.
Gas Unit	Measurement unit Strings: %, ppm, %LEL, %VOL, mA	All	R	per target gas	n/a
Inhibit Timeout	Inhibit timeout in minutes. 0 means permanent inhibit	All	R/W	10	minutes
Lower Zero Dead Band	Lower deadband range. The gas concentration within the deadband limit will be suppressed to default base concentration. I.e. if the gas concentration is between the (default base concentration - lower deadband) and (default base concentration + upper deadband), then the reading will be the default base concentration.	All	R/W	-2 %FSD	conc.
Max Range	Maximum configurable measuring range	All	R		conc.
Min Range	Minimum configurable measuring range	All	R		conc.
Resolution	Index of display resolution for gas relevant parameters	All	R/W	per target gas	n/a
Sensor Name	Sensor name consists of gas name, full scale range and measurement unit.	All	R	per target gas	n/a
Signal Fault Max	Upper mA input signal range to detect the fault reported by the detector.	mA sensor only	R/W	1.1	mA
Signal Fault Min	Lower mA input signal range to detect the fault reported by the detector.	mA sensor only	R/W	0	mA

Configurable Parameter Reference Guide

Parameter Name	Parameter Description	Applies to	Read/Write	Default Value	Measurement units
Signal Inhibit Max	Upper mA input signal range to detect whether detector is inhibited or not.	mA sensor only	R/W	2.2	mA
Signal Inhibit Min	Lower mA input signal range to detect whether detector is inhibited or not.	mA sensor only	R/W	1.8	mA
Signal Over Range Limit	Upper allowable limit for the input signal from the sensor/detector. If the signal is out of this limit, the I/O board will generate an input signal fault.	All	R/W	22 mA or 200 %FSD for mV	mA / mV
Signal Under Range Limit	Lower allowable limit for the input signal from the sensor/detector. If the signal is out of this limit, the I/O board will generate an input signal fault.	All	R/W	100 %FSD or 0 mA for mV	mA / mV
Signal Warning Max	Upper mA input signal range to detect remote warning from the detector	<i>mA sensor only</i>	R/W	0	mA
Signal Warning Min	Lower mA input signal range to detect remote warning from the detector.	<i>mA sensor only</i>	R/W	0	mA
Span Calibration Conc.	Target span gas concentration. Normally it is 50 %FSD.	All	R/W	50 %FSD	conc.
STEL Interval*	STEL period in minutes. The catalogue is using index instead.	mA sensor only	R/W	15	minutes
TWA Interval*	TWA period in hours. The catalogue is using index instead.	mA sensor only	R/W	8	hours
Upper Zero Dead Band	Upper deadband range. The gas concentration within the deadband limit will be suppressed to default base concentration. In other words if the gas concentration is between (default base concentration - lower deadband) and (default base concentration + upper deadband), then the reading will be default base concentration.	All	R/W	2 %FSD	conc.
Zero Range	Zero gas concentration. It is normally zero.	All	R/W	0	conc.

*Note: STEL/TWA selection only applies to mA input sensors except for Oxygen mA input sensors.

Fault Codes

Chapter 17 – Fault Codes

Code	Display in Event History	Description
1	Communication fault [B/D Type], Pos: xx, Code: xxx	Internal communication fault
2	Memory fault [B/D Type], Pos: xx, Code: xxx	internal memory fault
3	Catalogue memory fault	Catalogue memory corrupted
4	Internal hardware fault [B/D Type], Pos: xx, Code: xxx	Internal hardware fault
5	Sensor circuit fault CH: xx, [B/D Type], Pos: xx, Code: xxx	Sensor circuit fault
6	Supplied voltage fault [B/D Type], Pos: xx, Code: xxx	Supplied voltage fault
7	Internal software fault [B/D Type], Pos: xx, Code: xxx	Internal software failure
8	—	Reserved
9	Sensor fault CH: xx, [B/D Type], Pos: xx, Code: xx	Sensor fault (including signal range fault)
10	mA Output Error CH: xx, [B/D Type], Pos: xx	Analogue output mismatched
11	Relay Output Error CH: xx, [B/D Type], Pos: xx	Relay not controlled
12	Detector In Fault CH: xx, [B/D Type], Pos: xx	Remote fault notified by a detector (depending on fault signal range)
13	Battery Fault Pos: xx	Backup battery fault
14	IO B/D Not Matched [B/D Type], Pos: xx, Prev: xxx, Current: xxx	I/O board not matched or present
15	Negative Reading CH: xx, [B/D Type], Pos: xx, Conc: xxxx	Cell is producing a negative reading (depending on gas under-range limit)
16	Fault Cleared CH: xx, [B/D Type], Pos: xx, Code: xx	Fault self-cleared
17	Reset all faults	Manually reset all faults

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